

*The Roots
of Asian Weaving*

THE DE BUREAU COLLECTION OF TEXTILES
AND LACON FROM SOUTHERN CHINA



Eric Denard & Chris Buckley

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THE HE HAIYAN COLLECTION OF TEXTILES
AND LOOMS FROM SOUTHWEST CHINA



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Contents

Acknowledgments

Preliminary note

Foreword by He Haiyan

Part I: Background

Introduction

Chapter 1: cultural and historical context

Chapter 2: textiles and looms in ancient Chinese culture

Chapter 3: introduction to the looms and brocades of Southwest China

Part II: Field Research

Chapter 4: the Miao-Yao peoples

4.1 The Miao

Hand insertion of supplementary wefts

4.2 Guangxi Antai area

4.3 Guizhou Panxian area

4.4 Guizhou Zhaoxing area

4.5 Guizhou Zhouxi area

Hand insertion of supplementary wefts aided by tubes & layers

4.6 Guizhou Bakai area

4.7 Guizhou Geyi area

4.8 Guizhou Huishui area

4.9 Guizhou Shidong area

- 4.10 Guizhou Huangping area
- 4.11 Guizhou Liuhe area
- 4.12 Guizhou Biasha area
- 4.13 Guizhou Qiandongnan area
- 4.14 Guizhou Rongjiang area
- 4.15 Guizhou Bijie area
- 4.16 Guizhou Songtao area

- 4.17 **The Yao**
- 4.18 Guangxi Longji area ('Hong Yao')
- 4.19 Hunan Jianghua area
- 4.20 Guangxi Jinxiu area
- 4.21 Guangxi Bama and Du'an areas

Chapter 5: the Daic (Tai-Kadai) peoples

- 5.1 Introduction
- 5.2 A note about Daic Complex Pattern Heddles

- 5.3 **The Li**
- 5.4 Hainan Donghezhen (Meifu Li)
- 5.5 Hainan Wuzhishan (Qi Li)
- 5.6 Ha Li
- 5.7 Run Li

- 5.8 **The Buyi**
- 5.9 Guizhou Libo area
- 5.10 Guizhou Xingyi area
- 5.11 Guizhou Changshun area
- 5.12 Guizhou Qiannan area

- 5.13 **The Dong**
- 5.14 Hunan Tongdao area
- 5.15 Guizhou Bazhai area
- 5.16 Guizhou Liping area

- 5.17 **The Maonan**
- 5.18 Guangxi Huanjiang area

5.19 **The Mulao**, Guangxi Huanjiang area

5.20 **The Zhuang**

5.21 Guangxi Binyang area

5.22 Guangxi Jingxi area

5.23 Guangxi Napo area

5.24 Yunnan Funing area

5.25 Yunnan Wenshan area

5.26 Yunnan Qiubei area

5.27 Guangxi Baise area

5.28 **The Dai**

5.29 Yunnan Yingjiang area

5.30 South Yunnan area

Chapter 6: the Sinitic peoples

6.1 **The Tujia**

6.2 Hunan Longshan area

Part III: Analysis

Chapter 7: the evolution of the Asian loom

7.1 Introduction

7.2 Methods and results

7.3 Loom evolution: a narrative

7.4 Loom evolution: a geographical model

7.5 The Chinese Drawloom

Appendices

1. A note on the interpretation of the *Rhapsody on Women Weavers*
2. Minority textiles as ‘tribute’ to the Chinese court
3. Traditional natural dyes and fibres
4. Myths and deities related to weaving

5. Phylogenetic methods

Glossaries of loom and weaving terms

Bibliography

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Author Contributions

Introduction and Chapters 1–3: EB and CB.

Part II: EB (except Hainan: CB).

Part III: CB.

Appendices: EB and CB.

All maps, drawings and photographs are by the authors, except where indicated. Book design and layout by the authors.

Preliminary Notes

Textile terminology

In this book we use the term ‘brocade’ as a shorthand for ‘textiles decorated with supplementary wefts (continuous and/or discontinuous)’, and ‘brocading’ to mean the process of making these textiles. We use this term to describe textile structures, not the materials used. Brocade, under our definition, can be made with any type of fibre (cotton, silk or other) playing the role of warp or weft.

Using these shorthand terms spares us and our readers from repetition of the cumbersome ‘textile decorated with supplementary wefts’. ‘Brocade’ has a variety of alternative meanings (often rather imprecise) in other texts, however. Textile scholar Irene Emery recommended against the use of this term [Emery 1966] and it is not part of the nomenclature recommended by the Centre International d’Etude des Textiles Anciens (CIETA). The Chinese term *jīn* 錦, referring to an ancient type of textile, is also translated as ‘brocade’ in some works. We refer to these textiles as *jīn* or *jīn* brocades.

The variety of textile structures is limitless, and any attempt at a comprehensive and consistent terminology inevitably runs into exceptions and ambiguities. For example, in some cases there is no clear distinction between ‘ground’ and ‘supplementary’ wefts. Such terms should be regarded as a first approximation: refer to our detailed analyses of woven structures for a complete description.

Dimensions of textiles are given in centimetres. For bedcovers and other items with borders, the dimensions refer to the main textile, excluding the border, unless otherwise noted.

Regional definitions

For the purposes of this book, our definition of ‘Asia’ extends from the Indian border in the west to Japan in the east. It includes three sub-regions:

Mainland Southeast Asia (MSEA): Burma, Thailand, Cambodia, Laos, Vietnam and Malaysia

East Asia: China, Japan and Korea

Island Southeast Asia (ISEA): Indonesia, Philippines, East Timor and Papua New Guinea.

Classification of Ethnic Groups

No universal definition of ‘ethnicity’ exists, and all categorizations must be treated as ‘working definitions’. One approach to characterizing ethnicity is to use a cultural marker of some kind. Textiles and styles of dress have sometimes been used in this manner, and many informal names of minority groups in China are based on features of dress and coiffure. The definitions used by most scholars, however, and the ones that we have followed, are based on language and location.

In the case of the Cao Miao and the Jianghua Yao there are disagreements between scholars on the linguistic affiliations of these groups. We discuss the Cao Miao in the ‘Miao-Yao’ section and the Jianghua Yao in the ‘Yao’ section, but these choices are to some extent arbitrary.

Fieldwork

The central chapters of this book are based on fieldwork carried out from 2005. They are based on conversations with weavers, and we have attempted to report their weaving techniques and views on weaving culture and local history as accurately as possible. Historical information that we were given has not been checked against other sources and should be regarded as the personal views of the individual interviewees.

Dialect terms

In the fieldwork chapters of this book we give loom and weaving-related terms in the local dialect. These are the verbatim responses of the weavers interviewed to the question, ‘what do you call this item?’. In most cases this corresponds to the dialect of the weaver. This is not necessarily a ‘pure’ local language, and often includes elements from dialects of Han Chinese that are spoken in the area. We have rendered these local terms in *pinyin*, in the case of terms that lend themselves to this system, modified as appropriate. We are not linguists and we have not given phonetic renderings.

Loom descriptions

In our descriptions of looms, the ‘front’ of the loom refers to the part nearest to the weaver, and the ‘back’ refers to the warp beam. However, when describing the movements of the weaver, e.g. ‘pulling back’ or ‘leaning forward’ we use these in the intuitive sense relating to the weaver’s body, meaning pulling back away from the warp beam or leaning in towards the warp beam, respectively.

We describe back-tensioned looms that are used at ground-level (or near to it) as ‘simple back-tensioned looms’, to distinguish them from more complex back-tensioned looms with frames that incorporate a raised seat for the weaver. The term ‘simple’ is used here in a relative sense: many of the loom setups and techniques used on ‘simple’ looms are nevertheless quite complex.

Monetary values

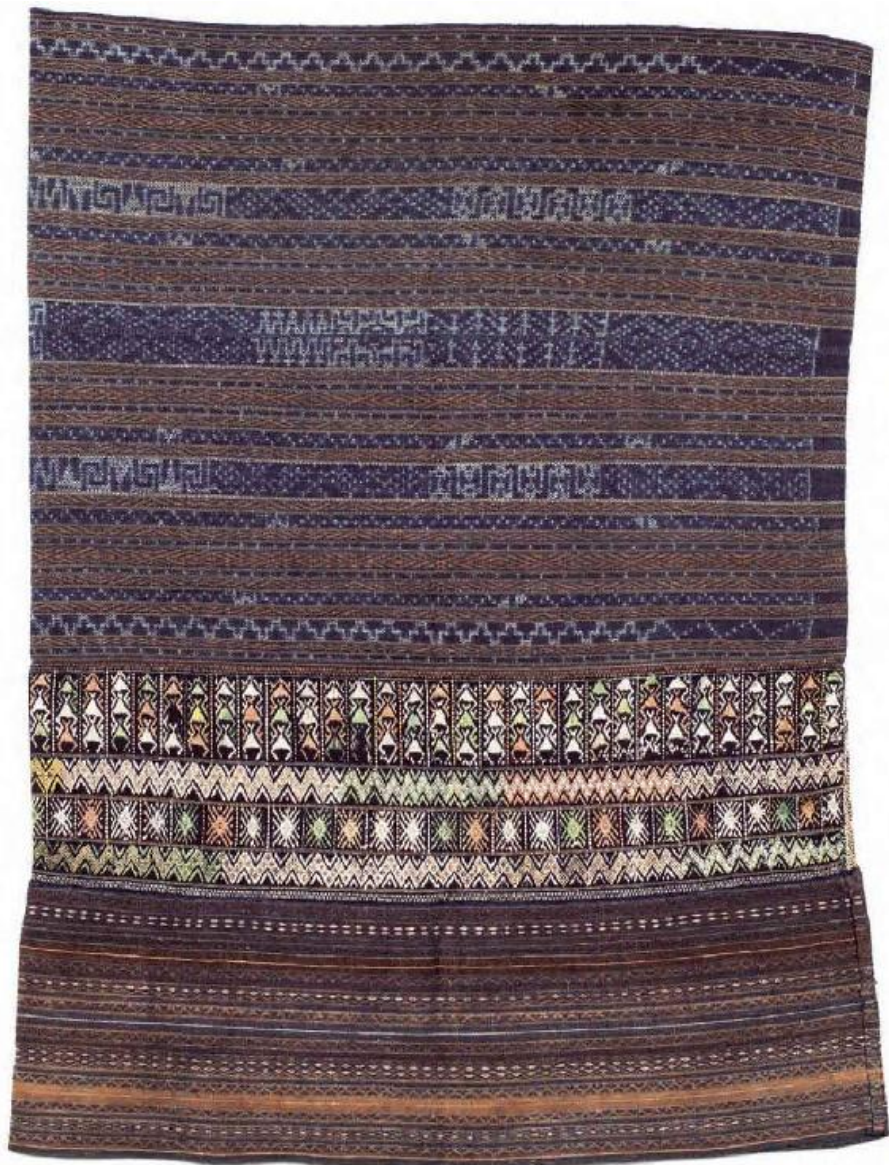
We quote the values of some items in Chinese currency, renminbi (RMB). To put these values in perspective, at the time that we began writing in 2013, 1 kilogramme of pork cost 12 to 15 RMB, 1 kilogramme of rice around 4 RMB, a pack of cigarettes around 10 RMB, and 1 kilogramme of silk yarn 400 RMB. The monthly salary of a migrant worker in cities was between 600 and 2000 RMB. During this period, 1 USD = 6.2 RMB, 1 Euro = 8 RMB approximately.

Navigating this book

The fieldwork chapters (Part II) are organized by ethnolinguistic group. A brief description of each group is followed by subsections by area, each of which corresponds to a distinct weaving tradition. In cases where we were able to find active weavers these subsections include detailed descriptions of looms and technique. Other areas, where we were not able to find active weavers, receive shorter treatments.

Figure numbering

Figures are numbered beginning with ‘Fig. 1’ in each subsection. Figures within a section are referred to by a figure number alone. Figures in other parts of the book are referred to by the figure number and section number.



Festival skirt for an unmarried woman, from Hainan. Woven on a foot-braced back tensioned loom by a Li weaver of the Meifu subgroup. The skirt is composed of bands decorated with warp ikat and warp patterning, and includes a band of silk supplementary weft on a cotton ground. Nineteenth or early part of the twentieth century. Dimensions: 60 cm × 80 cm. He Haiyan collection (See Chapter 5).

Foreword

by He Haiyan

When I was a child, my grandmother's house had a wooden chest. In it were neatly placed various sewing and mending tools, and paper patterns for making clothes and shoes. There was a cloth wrapper in which she had saved leftover pieces of cloth with colourful patterns: I had no idea how many years that my grandmother had spent on collecting these fragments. The chest always made me curious, whenever grandmother opened its lid, I liked to peer at everything inside.

Grandmother also had a delicate bamboo basket which was full of needles, threads and unfinished embroidery pieces. She had a pair of square pillow covers made of white silk and embroidered with a landscape design, with a little bridge over the flowing stream and houses beside the bank. I vividly remember her gestures and motions when she picked up a needle and thread. After grandmother passed away, the pillow covers and almost everything inside the 'Pandora's box' became the first part of my collection.

After my graduation from the University, I became a biology teacher at a teacher training college. During my spare time, I began to take out the small bamboo basket. Using the paper cuts as a reference, I started to make dresses for myself. In sewing, I followed the example of my grandmother, and since that time I have made almost everything I have worn by myself. Gradually one idea occupied me that never goes away: the making of cloth.

After I had been working for several years, I made an adventurous decision. I resigned my steady teaching job and went back to school again, to study fashion design in the Central Academy of Art and Craft

(presently the Academy of Arts and Design, Tsinghua University) in Beijing. At that time, I felt that I had entered the threshold of my dreams, though in fact I still had many more obstacles to face in life and in study.



My grandmother, at the age of 22 or 23, and some of her embroidery.

In the spring of 1994, with support from my family, my husband and I opened a small fashion shop outside the south gate of Peking University to sell my handmade clothes. On the opening day, the clothes in the shop almost sold out. People nearby seemed to have discovered a secret garden and suddenly everyone was talking about it. I think that in the shop they rediscovered the joy of handmade items made with exquisite craftsmanship, enthusiasm and aesthetic taste. Such things were not commonplace in Beijing at that time. The popularity of my designs meant that I was able to employ people to help me make more clothes by hand. After a while, it also meant that I could afford trips to explore other parts of China.

In China, Spring Festival is the time for family members to re-unite. For my husband and I it was the only time that we could shut the shop door and travel with backpacks. During the last two decades, we visited Tibet, Qinghai, Yunnan, Guizhou, Sichuan, Guangxi, Hunan and Hainan provinces. Every year we devote a month to travelling and to fieldwork, primarily on textiles, and these experiences have been an inexhaustible source of inspiration for my design work. At the same time we have also had the opportunity to acquire examples of old textiles from different ethnic minority groups. Many places that we visited were remote, economically undeveloped and hard to reach. In many mountain areas there was no motorized transport and no means of travel apart from on foot. We go to villagers' homes in the same

way that we go back to our own home. It became our mission to bring hidden treasures into light from the deep mountains, to preserve them and to allow others to share our appreciation of them.

One Spring Festival we arrived at Wajiao village in Huangping county, Guizhou province. In this area the Miao people refer to themselves as 'Ge people' (Gejia), the 'Ge' referring to textiles that are primarily decorated using batik. We knew that an elderly woman in that village had spent a lifetime in painting batik and was regarded as a legend in that field. When we finally met her, she was already 96 years old. She told us that she had learned her art from her mother when she was young. She showed us her mother's wedding costume, which was an exquisite coat with a 'hundred birds' design in batik and embroidery. The birds are vividly depicted and the dress appears to be a paradise made of birds. Around the wide sleeves embroidered butterflies dance. This masterpiece touched my heart. Perhaps because she saw my enthusiasm, perhaps because she saw the coat had a chance to be appreciated more widely, she eventually agreed to let me have it for our collection.

Wajiao village, where the elderly woman lived, is a typical story of rural China. It is a small mountain village of just over ten families, with no public road. Most young people now work in distant provinces, and only the elderly and children remain in the village. We stayed a long time listening to the old lady, with her granddaughter acting as translator. Her loneliness, and that of others in her situation, became apparent as she spoke.

During her childhood, she had no cotton cloth to practice batik painting, so she looked for a substitute: eventually she found that she could use the inner bark of bamboo shoots, rubbing it to make it smooth like paper. For ink she used the juice of tree leaves. At that time, girls were not permitted to draw using wax on cloth, both of which were precious commodities, until the age of 11 or 12. The patterns they drew had to be in strict accordance with the traditions of their clan, otherwise it was said that after death 'the spirits of the ancestors would not be able to recognize their kin'.

The complete process of making a decorated cloth, from weaving, through painting with wax, dyeing and embroidering, usually takes three to four years to complete. The old woman told us that when the women painted with wax, they would also sing the songs that had been passed from generation to generation, the lyrics of which cover all the phenomena on heaven and earth, such as the story of the creation, how their ancestors journeyed and the hardships they experienced before arriving at their present place on the mountain.

The granddaughter told us that she is unable to sing those songs,

although she has some skill in wax painting. She regretted that her own daughter knows nothing about batik. She told us that the youngest generation is not interested in these old skills, which remind them of poverty and old-fashioned ways. The same story might be heard anywhere in the Southwest.

I wanted to stay longer in the village, to record the grandmother's wax painting and songs, but our time was limited. When we left we said that we would visit again, but the old woman declared that she would not see us again, and that 'heaven would take her soon'. I was determined to visit at the same time the following year, but, not long after I left, I learned that she had passed away. She took with her the epic poem of the Miao people and her legacy of batik painting. Nowadays her image is superimposed in my mind with that of my own grandmother. The 'hundred birds' wedding dress that her mother left her is still in my collection, the birds are still lively.

In the mountains, I met numerous older women who reminded me of my grandmother. They used to be busy with weaving, however during recent years there is less demand for handmade cloth in the countryside. Since my workshop in Beijing generates a large amount of textile fragments every day, I had the idea of sending them to the small villages and ask the older women to weave them into new cloth. For this they use a traditional technique that was formerly used to recycle old cloth, using the fragments of cloth as a thick weft to make bedcovers. In this way some abandoned looms have become busy again and the 'old days' have returned, at least in a few places. We have also collaborated with some young weavers to make contemporary designs using traditional methods (photo: above).





The ‘100 bird’ coat described in the text, decorated with indigo batik and embroidery. From Huangping county, Guizhou.



A young Buyi weaver displays a contemporary textile woven for the Heyaner Textile Art Studio, using a traditional loom and weaving technique.

As my collection expanded, I become curious about the techniques of weaving. As with batik making, I discovered that traditional weaving techniques are vanishing. In many villages there is often no one who knows how the clothes they inherited from the older generations were made. At this time, the purpose of our collection began to become clearer. We understood the need to collect information as well as

textiles, and we began to collect looms and old pattern samples. Our objective, which has been partly realized, is to establish a studio to focus on the collection, preservation, research, conservation and exhibition of textiles from Southwest China. This is an ambitious project, and as a designer my aim is to naturally combine the activities of collection and creation.

At the present, we are archiving the entire collection of more than 6,000 pieces. The collections will be displayed stage by stage. At the same time, we wish to record traditional techniques and to experiment with new techniques inspired by the collection.

About this book

Several years ago, I became acquainted with Eric Boudot in Beijing. He is an expert on antique Chinese textiles, in particular the textiles of the minority peoples of Southwest China. His dedication and broad knowledge of textiles impressed me and won my respect. As a result of this encounter I invited him to join me to study part of my textile collection and looms. We aimed to produce a book that would investigate the historical context and the development of looms and technique in Southwest China. During the past three years, Eric has been working many hours, doggedly studying the individual structures of various fabrics woven on the loom and the techniques demonstrated by older weavers. The results of his efforts, in the form of detailed structural and loom diagrams carefully drawn by hand, can be seen in the pages of this book, alongside superb examples of textiles made using these techniques.

During the writing, we were fortunate to get to know Chris, another textile expert who combines research into the historical development of looms with an anthropological viewpoint, which has helped us to elevate the book to a higher academic level. A mutual interest on textiles brings the three of us together and we have formed solid friendship. This is the first time that we have cooperated to produce such a book and it is the first such project of the Heyaner Textile Art Studio. I am grateful for everything that Eric and Chris have contributed and I believe that this book will become a milestone in the study of the textiles of Southwest China.

Beijing, July 2015.



Fig. 1 Detail of a Dong wedding bedcover from Bazhai in Liping county, Southeast Guizhou (see Chapter 5, Section 5.15). Made of silk, cotton and ramie, coloured with vegetable dyes. Nineteenth century or earlier. Private collection. The discovery of this unusual and very old textile, from a tradition that appears to have been completely lost, provided the initial impetus for our study.

Part I

Background

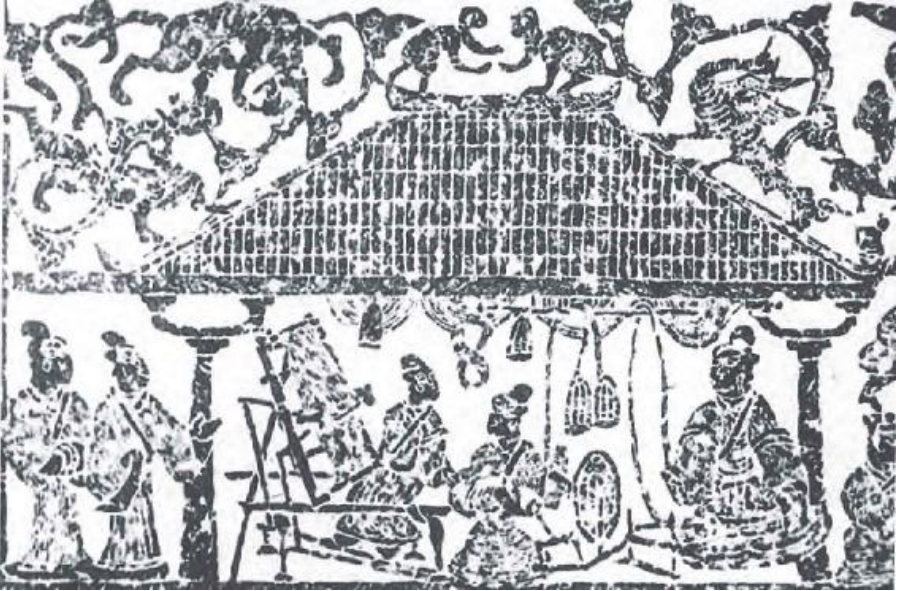


Fig. 2 Rubbing of a stone carving from a Han dynasty tomb, showing a domestic weaving scene.

Introduction

This book describes the weaving traditions of Southwest China, and places them within the wider context of weaving traditions in Asia. Our particular focus is textiles that are made and decorated ‘on the loom’, as opposed to embroidery, batik and other techniques that are added after weaving. This is partly because this is a neglected area, and partly because loom-based techniques are conservative in nature, so they capture some of the oldest aspects of weaving.¹ Looms and the patterns encoded on them are complex devices, and weavers are correspondingly reluctant to alter them, so they tend to be passed intact from generation to generation. In contrast, a young woman creating embroidery or appliqué is relatively free to follow her own preferences or the fashion of the season.

The weavers of Southwest China are exclusively female, and they traditionally produced textiles mainly for their own use or the use of their families. This follows a general pattern across Asia (and many other parts of the world) in which women weave textiles that will be used within their own communities. Men, in contrast, only tend to become involved if weaving is the basis of a ‘trade’.

We begin, in Part I, by describing the background to our study. A central part of this is an explanation of why we have devoted a great deal of attention to a relatively small, upland region, located in the border area where China meets Southeast Asia. As we will show, this region is both a centre of cultural diversity, and a key to understanding other textile traditions and weaving methods in the Asian region, including Han Chinese textiles.

In Part II of this book we present our field research, conducted over the past decade. This includes many looms and techniques that have never been documented before. We have tracked down some of the last remaining weavers able to demonstrate their skills with their looms. Some of these traditions that formerly existed are now known only from a handful of surviving examples of textiles (Fig. 1), though in some cases we can reconstruct the techniques that were formerly used by comparison with neighbouring traditions.

Our documentation of looms and weaving is accompanied by examples of textiles decorated with supplementary weft-patterning. As with the looms, these include types that have never been published before. Readers who have some familiarity with the costumes and accessories of minority groups in Southwest China may be prompted to ask ‘why have I not seen these before’. One reason is that previous publications² have tended to focus on costume (jackets, skirts, baby carriers), on which the primary decorative techniques are embroidery, appliqué and batik. Another reason relates to age: supplementary weft techniques have been falling into disuse at a faster rate than appliqué and embroidery. Most of the textiles reproduced in this book were made before 1950, with some dating to the nineteenth century or even earlier.

In Part III of this book we venture beyond the ‘descriptive’, and carry out a comparative analysis, using contemporary techniques borrowed from linguistics and biology. The results shed light on the wider development of textile cultures in Asia, and we will show that the traditions of Southwest China preserve many of the critical developments in the evolution of looms and weaving technology. This includes aspects of the Han Chinese textile tradition, such as the source of the patterning technology of the Drawloom.

The Han Chinese silk weaving tradition

In the study of Asian textiles, much has been written about Han Chinese textiles, especially silk.³ This celebrated tradition was centred around the production of luxurious textiles for the court, and for the representatives of the emperor who administered his domain. Robes, badges and other insignia denoted rank, and great importance was placed on obtaining supplies of high quality textiles. The Han Chinese custom of burying the elite dressed in finery, coupled with a dry climate conducive to textile preservation (especially in northern regions) has meant that museums are well-supplied with examples of early textiles from this tradition, and its history and development are well understood, at least in relative terms.⁴

Aside from spectacular costumes and woven textiles, Han Chinese weaving is associated with production in organized workshops, and (eventually) with the development of a specialized looms such as the Chinese Drawloom, capable of producing complex designs, repetitively and to order. The history and development of this loom has been a central theme for textile researchers. Its early history has been a puzzle however, particularly the development of its most important feature, the patterning system that records the design in the form of cords organized in a matrix.

A Diversity of Traditions

The Han Chinese tradition represents just one of the many weaving traditions within the borders of modern China, albeit the one that is the best known. The Chinese nation is officially made up of '55 nationalities', and numerous other weaving traditions exist within its borders. Of the 55 official nationalities, 28 have their homelands in a relatively small region of Southwest China,⁵ centred on the provinces of Guizhou, Guangxi, Yunnan, and including parts of Hunan, Sichuan, Guangdong and Hainan. This area is correspondingly extremely rich in ethnic and linguistic diversity,⁶ and includes an astonishing variety of weaving. To put this in perspective, silk textiles in the Han Chinese tradition have been woven (at least until recent historical times) on similar looms in commercial workshops in cities as widely separated as Chengdu, Hangzhou and Beijing. A Chinese weaver walking into any of these workshops would immediately recognize the looms, techniques and decorative styles employed. In contrast, in the course of our research we were able to find a greater variety of looms, techniques and styles of decoration in a single province (Guizhou) than in the entirety of Han-Chinese speaking China. Within Southwest China as a whole we can find most of the major types of loom that are used in Asia.⁷ These looms range from the most basic ground-level body-tensioned looms to sophisticated frame looms with patterning devices of breathtaking complexity.

To appreciate why a relatively small, upland region came to be of such importance, some background in the history and pre-history of the region is required, which we discuss in Chapter 1. The central point is that the diversity of the region consists not merely in the total number of different languages and peoples, impressive though this is, but in the deep roots that many groups have within this region. They include speakers of four major Asian language families (phyla): Daic (Tai-Kadai), Austro-Asiatic, Miao-Yao and Sino-Tibetan. The Han Chinese language (Mandarin and its various dialects), which predominates over a vast region to the east, is but one member of the Sino-Tibetan language family.

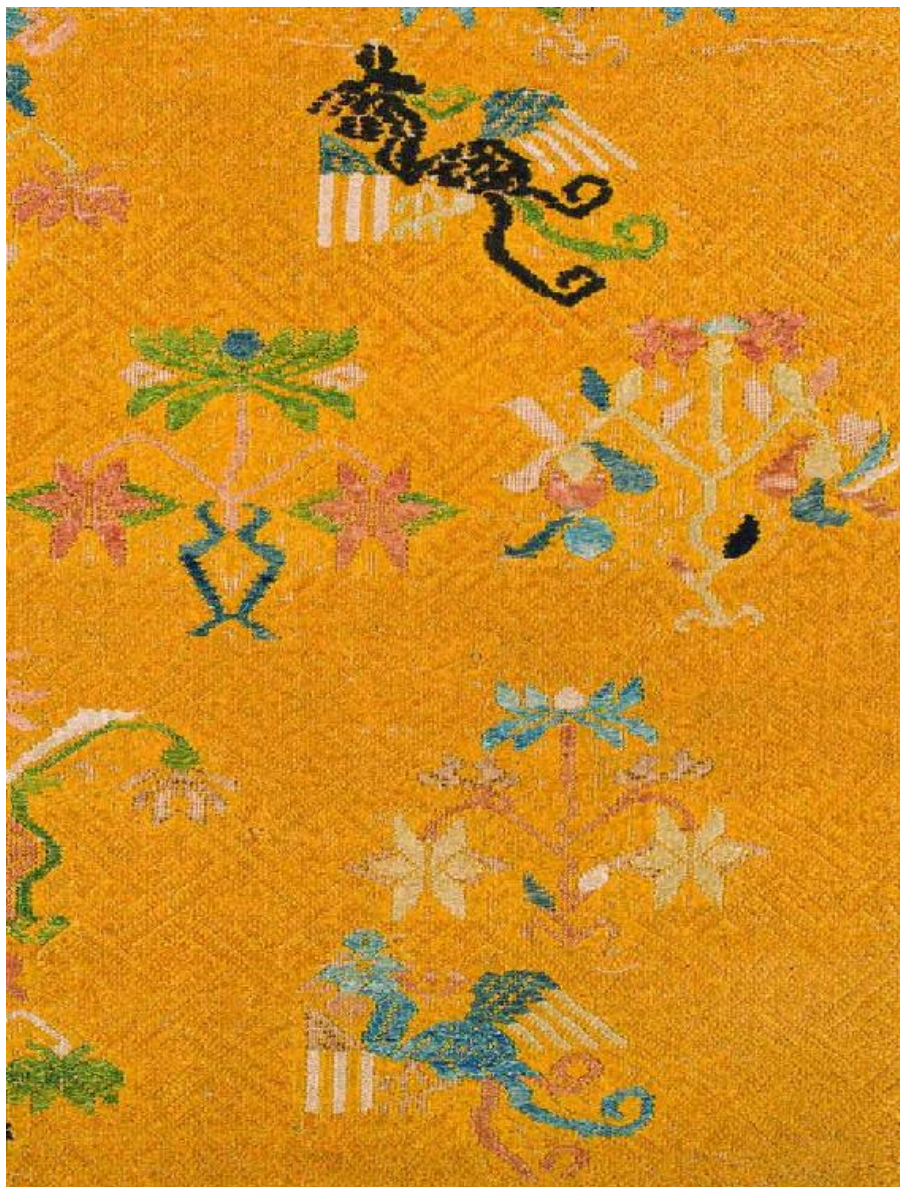


Fig. 3 Detail of a Maonan wedding bedcover (see Section 5.18, page 293). Silk and cotton, natural and synthetic dyes, Huanjiang county, Guangxi province. He Haiyan collection.

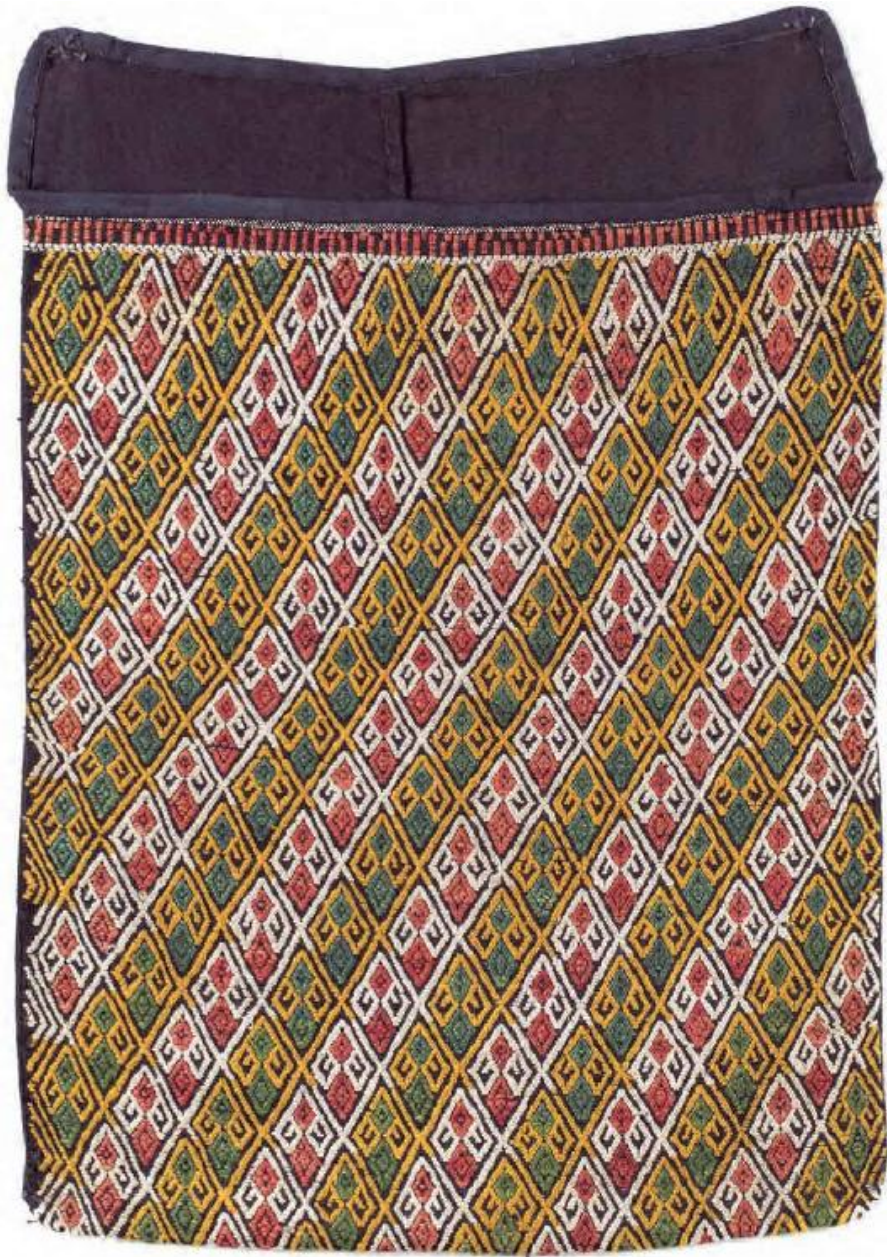


Fig. 4 Brocaded wedding bag, Dong people, Liping county in Guizhou. 45 cm × 32 cm, silk and cotton, vegetable dyes. Nineteenth century. He Haiyan collection.

Textile focus and terminology

As mentioned, we are concerned with textiles with decoration added on the loom, primarily supplementary weft. We use the term ‘brocade’ as shorthand to denote textiles decorated with supplementary wefts, both continuous and discontinuous (see ‘Preliminary Note’). We also

review some warp-patterned textiles, such as those made by the Yao people of the Jianghua area, although this technique is less common today than weft-patterning.

Tradition and change

Our fieldwork has been carried out with a sense of urgency, against a background of the steady loss of traditional skills and cultural knowledge. Since the 1980s, great economic changes have taken place in Southwest China, lifting millions out of poverty as well as creating opportunities for education and employment for rural people. As a direct consequence, few young women are learning to weave and even fewer to spin yarn from locally grown fibres or to dye using traditional methods. The norm for most young people in Southwest China today is to travel to a distant province, leaving children behind in the care of grandparents. This gives them little or no time to learn weaving. Some notable exceptions to this trend exist such as the government sponsored workshops of the Zhuang weavers, but weaving in Southwest China in the twenty-first century presents a picture of loss of diversity and a reduction and simplification of skills. Brocade weaving is often the first traditional craft to disappear because of its complexity.

Embroidery is more resilient: it requires simple equipment (a needle and thread) and can be applied to shop-bought cloth. Miao people in the Panxian area, for example, now produce embroidered versions of their traditional garments, which they formerly made on the loom using supplementary weft techniques. The fieldwork carried out for this book, which includes descriptions of functioning looms and weaving techniques on video and in photographs, and our interviews with weavers, is therefore a unique record of disappearing cultures.

Pattern and motif

The study of textile motifs generated much interest among twentieth century anthropologists. A classic example is the analysis of Indonesian motifs by Jager Gerlings [1952], who, like other researchers of the period, sought ‘meaning’ in motifs, and whose publications include interpretations with religious or mythological overtones. The origins of this type of thinking can be traced back to psychoanalytical approaches to the art of ‘primitive’ cultures that were in vogue during the early part of the twentieth century. A fascination with ‘hidden meanings’ persists amongst some writers to this day, though we have found little or no evidence to support such interpretations in our surveys.

There is no doubt that weavers, when pressed by eager researchers,

may supply mythological interpretations of their motifs. However, in our experience of interviewing weavers we found that while some motifs have names, few are associated with complex symbolism. The ‘meanings’ that do attach to motifs are usually associated with luck, good fortune, or protection such as the White Tiger motif used by the Tujia to decorate baby blankets, which is supposed to keep the infant from harm (Chapter 6, Section 6.2). The names that are given to particular motifs also tend to differ between one weaver and her neighbour, suggesting that while motifs may be transmitted faithfully, ‘meanings’ are generally not.

There are exceptions, such as accessible and commercially minded weaving groups and textile traders, who have learned that visitors expect to be provided with stories and enjoy ‘mythological’ explanations. Other exceptions are weaving traditions that have absorbed traditional Han Chinese iconography, with its auspicious motifs and rebuses (for good fortune, longevity, success in the imperial examinations, birth of sons) based on word-play and homophones. These meanings tend to become lost or blurred, however, the further one moves (figuratively and literally) from their Han Chinese origins.

This is not to say that motifs have no importance to weavers. On the contrary, the accurate reproduction and placing of a traditional pattern is of crucial importance in the evaluation of a weaver’s skill within her community. Motifs and designs are also jealously guarded and regarded as the property of one particular group of weavers. In this sense they are an expression of local identity, rather than a matter of religious or mystical significance.

The study of motifs, particularly when taken in the aggregate, can also reveal the lineage of and connections among different weaving traditions [Buckley 2012]. In this study we focus on loom technology and textile structures, which provide another route to uncovering deep connections between weaving traditions.

1 The anthropologist Junius Bird was amongst the first to recognise and advocate the study of weaving technique [Bird 1960].

2 Publications in English dealing with the textiles of Southwest China include *Clothing and Ornaments of China’s Minorities*, published by the Cultural Palace of Nationalities [1985] as well as books by Theresa Reilly [1988], Gina Corrigan [2001], Sadae Torimaru [2001, 2004], the University of Hawaii [2009] and the Metersbonwe Museum in Shanghai [2007] (Chinese with English captions). Tujia brocade weaving is documented in books by Tian Ming [2009] and Zuo Hanzhong [1994]. There are also many publications by regional museums in China, though these are concerned mainly with examples of costume produced since 1950.

3 Publications relating to the Han Chinese silk weaving tradition include the review *Chinese Silks* by Kuhn and his co-authors [2012], works by Zhao Feng [1999, 2004, 2005, 2012, 2014], *Chinese Silk* by Shelagh Vainker [2004], *Chinese Dress* by Verity Wilson [1986], a study of motifs by Gao Hanyu [1992], exhibition catalogues by John Vollmer: *Silk for Thrones and Altars* [2003], Robert Jacobsen: *Imperial Silks* [2000], Paul Haig and Maria Shelton: *Threads of Gold* [2006], Huang Nengfu: *Seven Thousand Years of Chinese Silks* [2002], James Watt: *When Silk Was Gold* [1997], Claudia Brown: *Weaving China's Past* [2000], Ho Kam-Chuen: *Heaven's Embroidered Cloths* [1995] and Chris Hall et al: *Power Dressing: Textiles for Rulers and Priests* [2006]. As the titles make clear, these works attest a continuing fascination with silk textiles produced for the elite.

4 Burials of high-status individuals frequently included luxurious silks. Finds of silk from the early period include those from Mashan in Hubei, dating to the Chu kingdom (BCE 863 – 221 CE), the Warring States period tomb at Baoshan in Hubei and the Han dynasty Mawangdui tomb in Changsha, Hunan. Numerous tombs from later periods have also yielded textiles. Another important source of early textiles are the caches of religious materials from Dunhuang and related sites, many of which are now in overseas collections [Zhao Feng 2007, 2011], and burials at Niya, Yingpan, Dulan and other sites in the dry Northwest provinces, dating from the Han to the early Tang [Zhao Feng 2002]. The original archaeological reports for these finds are difficult to obtain except in specialised libraries, but they are summarized in *Chinese Silks* [Kuhn 2012] and the series of publications edited by Zhao Feng (see Bibliography). More humble fabrics are sometimes found in tombs, but these generally receive scant attention in archaeological reports.

5 Officially recognised ethnic groups that have their homelands within our core study area, comprising the provinces of Guizhou, Guangxi, Yunnan, Hainan and parts of Guangdong, Hunan and Sichuan, include the Achang, Bai, Blang, Buyi, Dai, De'ang, Dong, Gelao, Hani, Jing, Jinuo, Jingpo, Lahu, Li, Lisu, Maonan, Miao, Mulao, Naxi, Nu, Pumi, Qiang, Shui, Tujia, Wa, Yao, Yi and Zhuang.

6 See note on 'ethnicity' in Preliminary Notes.

7 See our definition of 'Asia' in Preliminary Notes.

Chapter 1: cultural and historical context

This chapter provides background to the development of Southwest China as a region, and explains its significance for understanding the cultures of Asia as a whole, specifically in terms of weaving.

1.1 Prehistory

The prehistory of Asia has been studied from several different perspectives: linguistic, archaeological and genetic. Integrating these studies into a coherent whole is a ‘work in progress’,¹ but the outlines are reasonably clear.

In broad terms, we can divide the settlement of the Asian region into three phases:

1. An initial settlement by Anatomically Modern Humans, who are believed to have arrived in Asia from Africa via a coastal route around 50,000 years ago. The earliest settlers populated the region at relatively low density, and pursued hunter-gatherer lifestyles. These Palaeolithic settlers left few traces, aside from archaeological remains of stone tools and some remnant populations on offshore islands, such as the Andaman Islands. This was undoubtedly a complex story, but much of the evidence has been obliterated by later (Neolithic and recent) developments.
2. The Neolithic period, beginning around 10,000 years ago with the gradual development of millet and rice cultivation in the Yangzi and Yellow River basins, and the eventual spread of Neolithic farming culture to most of Asia by approximately BCE 2000. The major shift in human culture corresponding to the beginning of the Neolithic period gave rise to organized, village-centred societies based around cooperative agriculture, and to denser populations. These Neolithic cultures gradually replaced or absorbed pre-existing hunter-gatherer cultures.
3. The historical period, beginning around 2000 years ago, which saw the rise of polities with regional influence, principally the

Chinese empire in the east and the Indianized kingdoms of Dvaravati, Angkor, Champa and others in the west of the region.²

The second, Neolithic, phase was accompanied by the development and spread of the major language groups recognised in Asia today:

Austroasiatic (Khmer and others)

Daic (also known as Tai-Kadai)

Miao-Yao (also known as Hmong-Mien)

Sino-Tibetan

Altaic (Turkic, Mongolian)

Austronesian

As mentioned, Southwest China is home to speakers of the first four of these six language families³ (Fig. 1). The families are dissimilar, with relatively little shared lexicon. Linguists look for the origins of language groups (and, by implication, peoples) in regions where their diversity is greatest⁴ and at least two of these families (Daic and Miao-Yao) are believed to have originated in the Southwest.⁵

In the case of the Daic languages, for example, Daic speakers are very numerous in Thailand, Laos and Vietnam, but the greatest number of distinct Daic languages is found in Southwest China. These include speakers of Tai (called Dai in China), Northern and Southern Dong (Kam), Buyi, Maonan, Southern and Northern Zhuang and Li (Hlai), Gelao and Shui (Fig. 2). The textiles of many of these groups are considered in this book.

During the Neolithic, much of Southern and coastal China, roughly from present-day Shandong southwards, was also home to a diverse population, including speakers of Daic, Austroasiatic and Austronesian languages.⁶ From their beginnings in central China, people speaking dialects of Han Chinese expanded southwards, absorbing or replacing speakers of other languages. Some of the non-Han speaking groups migrated southwards and westwards in response. For example, many speakers of Daic languages were pushed westwards, and as a consequence pockets of Daic speakers are now found as far away as Assam in Northern India.⁷

Parallel to the importance of Southwest China in the origin and dispersal of language groups, a number of cultural markers such as musical instruments (free-reed mouth organs, suspended gongs) and weapons (crossbows) also appear to have originated in this region and spread to the south and east. In Part III we will present evidence for the origins of looms and weaving cultures in this region too, and their subsequent spread. We will show that the oldest looms, of the ground-level backstrap type, have the widest present-day distribution,

consistent with an early dispersal, probably concurrent with the expansion of Neolithic cultures. We will also show that some of the more complex types, such as frame looms, also seem to have their origins in this area, along with important technologies relating to the patterning of textiles, that ultimately spread to other parts of Asia.

1.2 The historical period: from independence to assimilation

The transition from our sketch of the archaeological and pre-historic period to historical records involves a ‘disconnect’, since the lines of evidence that we are considering are so different in character. The historical records that we have are mainly accounts written by Han Chinese historians, since non-Han peoples kept few records. The concern of these early historians was to record the history of China as they understood it, which is primarily an account of the ascendancy of one group, the Huaxia/Han,⁹ and the gradual assimilation of the rest. This involves a particular viewpoint, though to some extent we may piece together a broader history by ‘reading between the lines’ (see for example the discussion of the *baimiaotu* albums below).

Prior to the creation of a unitary state by the Qin in BCE 221, the region that is now central China¹⁰ consisted of a group of states with shifting boundaries (Fig. 3). Some of these early states may have corresponded to ethnicities that are still recognized today, however there is no clear agreement amongst historians, linguists and archaeologists about which ones.

After unification the nascent Chinese empire had a concentric character. The central plains region was under close imperial control, but this influence diminished further away from the centre. The region that we are mainly concerned with (the South and Southwest) is relatively distant, and its assimilation was a long and drawn-out process that continued into recent times. At any given time, up to and including the twentieth century, one could distinguish areas that were under actual control and regions where imperial rule was present in name only.¹¹

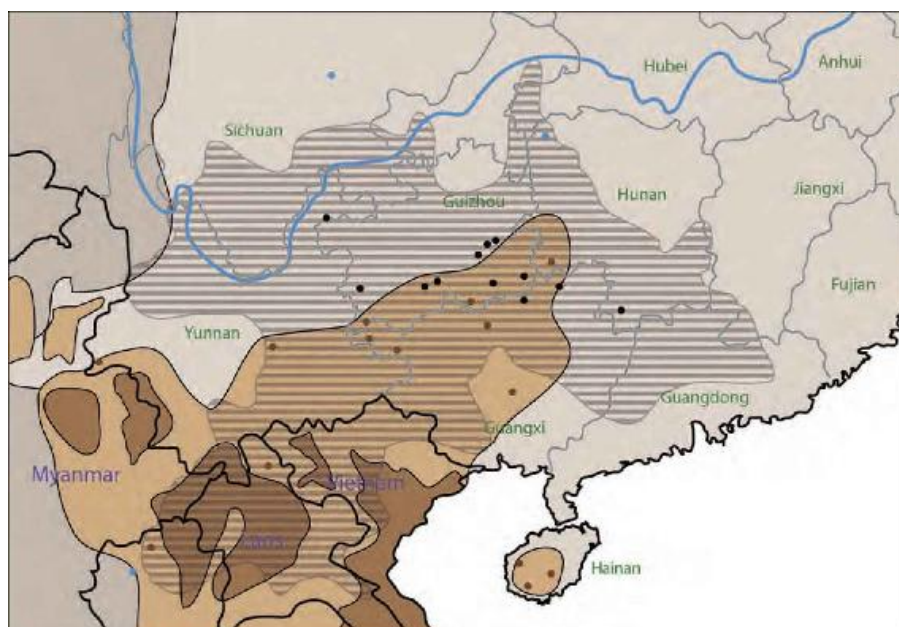
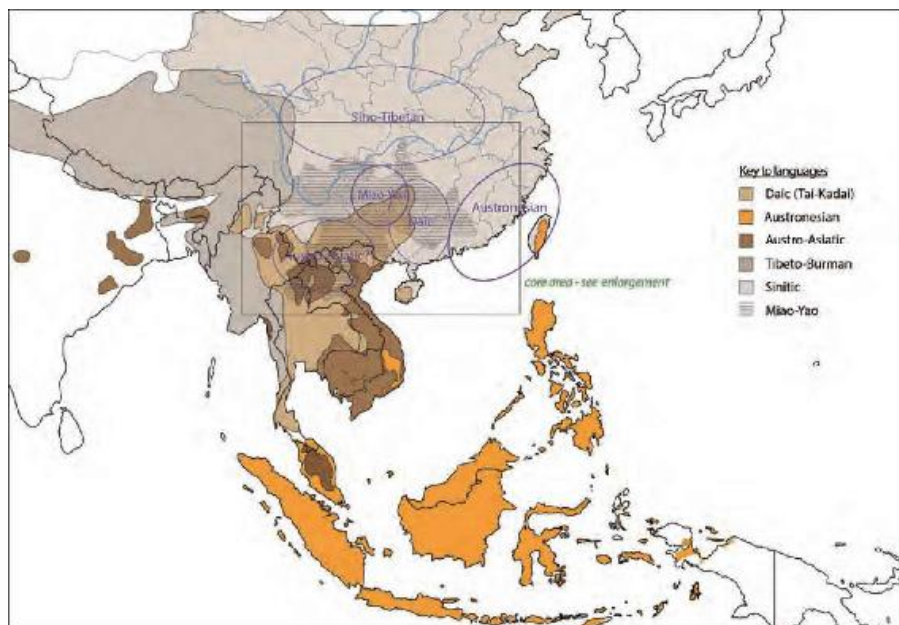


Fig. 1 (Above) the locations of the five major language families discussed in this book, together with their inferred homelands. The Miao-Yao family is shown as an overlay, since it is scattered amongst other groups. Sino-Tibetan is divided into Sinitic and Tibeto-Burman. Sources: Ethnologue (www.ethnologue.com), homelands are based on works by Blust, Bellwood and others.

(Below) enlargement of the core study area in Southwest China.

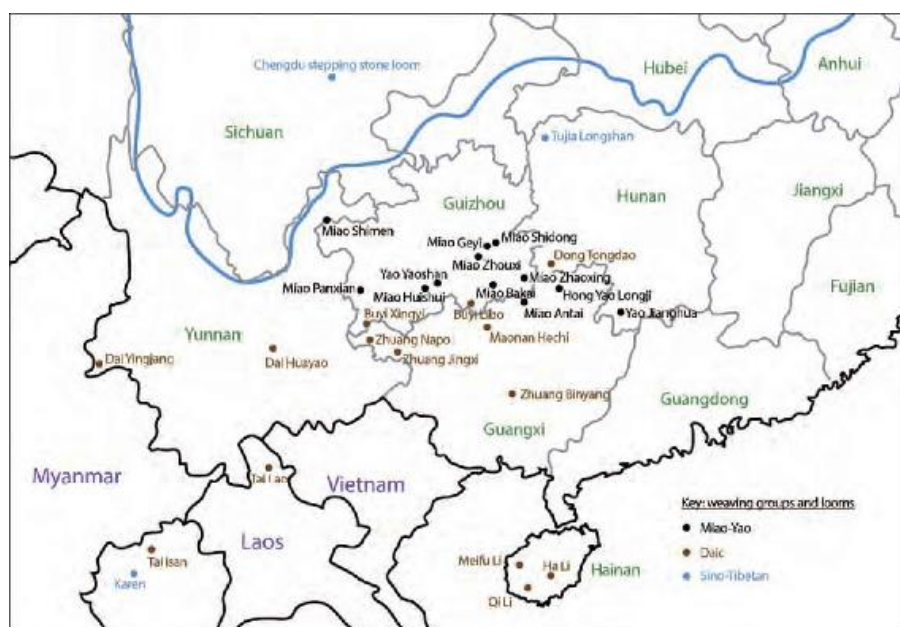
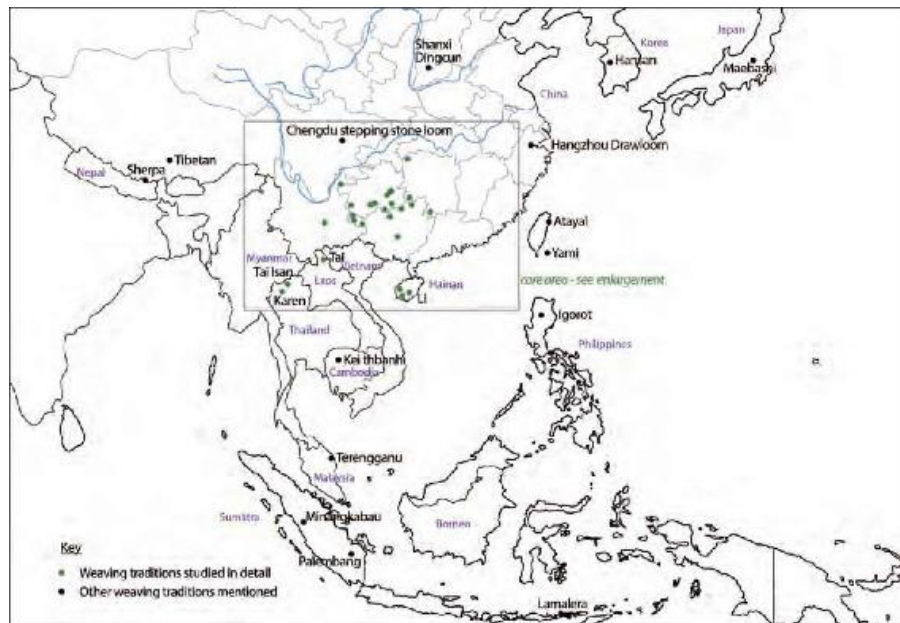


Fig. 2 (Above) the locations of weaving traditions mentioned in this book.
(Below) enlargement of the core study area in Southwest China.



Fig. 3 Map of China circa BCE 250, showing the approximate extent of kingdoms and cultural areas (such as the Dong-Son cultural area in what is now Northern Vietnam), prior to unification under the Han in BCE 206.

During the Tang and Song dynasties, military alliances were concluded (notably in Guizhou, Eastern Yunnan and Southern Sichuan) between the imperial government and local existing native powers in the Southwest. One result of this was the creation of hereditary polities called *jimi*,¹² under local rulers with nominal allegiance to the imperial court. These acted as buffer states between the Chinese empire and some of its peripheral enemies, such as the Cuan, Nanzhao and Dali kingdoms.^{13·14}

After the Yuan armies conquered Yunnan in 1253, and especially during the ensuing Ming dynasty, the *jimi* became integrated to a greater degree with the imperial hierarchy and their local native leaders were given the official title of *tusi*,¹⁵ swearing allegiance to the emperor, agreeing to provide military support and to pay regular tribute. Two types of *tusi* titles were granted: civilian *tusi*, who were well integrated into the Chinese administration, and the military *tusi*, who were more independent.¹⁶ The *tusi* were mostly granted hereditary titles¹⁷ and they were generally left alone to manage the internal administration of their dominions.¹⁸

The *tusi* system, which was known as 'local officials rule',¹⁹ was officially abolished by the Yongle emperor (r 1403–1424) who

promoted a policy of ‘removing the local, replacing with the central’ (*gaitu guiliu*)²⁰ replacing local *tusi* by appointed Han officials. This new policy was pursued during the remainder of the Ming dynasty and the subsequent Qing dynasty, and was accompanied by an influx of Han populations to places where they were originally almost absent.²¹ In geographical terms the result was a patchwork, with some areas coming under central control and other areas remaining largely unaltered. Numerous ‘inner frontiers’ persisted, in the provinces of Guizhou, Sichuan and Yunnan, and even in the Xiangxi area of Western Hunan province,²² demarcating zones that remained outside of imperial control, or under nominal control only.

Indigenous populations, especially the Miao, were classified by the Chinese administration in two categories, *sheng* and *shu*, according to their relative degree of sinicization (see discussion in Section 1.6 of this chapter, footnote 41). The *gaitu guiliu* reform was theoretically complete by the time of the reign of the Qing Emperor Yongzheng (r 1723–1735).²³ In reality it would take more than five hundred years to be applied to the whole of Southwest China, and some *tusi* were still powerful in the early part of the twentieth century.²⁴

1.3 Differences in degree of imperial influence: Guangxi, Yunnan and Hunan

Guangxi province was originally the home of the people known as the *baiyue*²⁵ (Hundred Yue Peoples), who are first mentioned in Master Lü’s *Annals of the Spring and Autumn Period*,²⁶ compiled in the third century BCE. The identity of the *baiyue* is uncertain,²⁷ but those early reports show that Guangxi has been ethnically diverse for at least the last two millennia.

Today, Guangxi is home to several Daic-speaking groups, of whom the Zhuang are the most prominent. The Zhuang feature in Han Chinese historical accounts from the thirteenth century onwards. The process of absorption of Guangxi into the Han cultural sphere began as early as BCE 214 when the region was conquered by a general of the Qin state. Rebellions by the Zhuang against imperial authority were a frequent occurrence after this date, however. Under the Tang rulers, Guangxi was divided into a Western half, mostly peopled by non-Han people and an Eastern half that was predominantly Han. The province was always unruly: in 1052 a revolt led by Nong Zhigao led to the creation of the ephemeral kingdom of Nandian. In 1850, the Taiping rebellion began there, which eventually almost toppled the Qing dynasty. Following immigration over many centuries, the Han now make up 62 percent of the present day Guangxi population, while the Zhuang represent 31 percent.²⁸

Yunnan province, an important economic hub located on the commercial route linking India and Southeast Asia to China, managed to keep its independence for a long period under the kingdoms of Nanzhao and Dali. These kingdoms are believed to have been ruled by local ethnicities, consisting of a Yi aristocracy acting in tandem with a Bai administration. Kublai Khan, founder of the Mongol Yuan dynasty, finally conquered the region in 1253. Today, among China's 55 officially recognised minorities, 25 are present in Yunnan, however they represent only 33 percent of the population.

The major part of Hunan province was incorporated into the Chinese empire at the founding of the first imperial dynasty, the Qin, even though (as noted) West Hunan, peopled mostly by ethnic minorities, took longer to subdue. The Han people now account for 90 percent of Hunan's population. Most of the minority ethnic groups live in the western part of the province, along the Guizhou border.

1.4 Guizhou: a holdout against imperial authority

Guizhou was integrated at a much later time than surrounding Yunnan, Guangxi and Hunan. This seems to have been a factor in preserving ways of life long abandoned elsewhere, and it is certainly not accidental that this is where we were able to find the greatest variety of brocade looms and techniques during our research.

Guizhou only became a province of China in 1413, and its first governor was appointed in 1449. The allegiance to central authority remained nominal however, as the few existing garrisons, based in forts located on imperial roads and in major river valleys, only controlled the regions immediately surrounding them. The rest of the province was governed by *tusi*, who numbered about 250 under the Ming. As noted, the *gaitu guiliu* policy of replacing the local *tusi* by appointed Han officials would not be fully implemented until well into the twentieth century.

An ancient saying summarized the economic situation in the province: 'In Guizhou no three days go by without rain, there are no three *li* [about one mile] of level ground and you will never find anyone with [more than] three copper coins'.



Fig. 4 Details from textiles with figurative designs 'floating' on a geometric background, in these instances a wanzi (swastika) lattice. Left: an example of a Maonan brocade. Right: Tujia bedcover, Facing page: Han Chinese silk from the Qing dynasty.

Considered backward and uncivilized, and regarded with disdain by most Han officials, who viewed a posting to the area as tantamount to exile, Guizhou was long neglected by the central government. Its humid and unhealthy climate was responsible for numerous illnesses and epidemics; its harsh relief was inappropriate for agriculture (only five percent of the province's land is flat) and poverty was endemic until recent times. Economic development was hampered by slow and inconvenient transportation: until the early twentieth century access was limited to narrow tracks paved with stones, with interminable steps, only navigable by foot, horseback or sedan chair. Rivers in the East and the Southeast of the province allowed access by boat, but were mostly used to ship timber. By the midnineteenth century it still took 40 days to transport goods from Guiyang to Yunnan's provincial capital Kunming [Jenks 1994].

This relative inaccessibility made Guizhou a refuge not only for the numerous ethnic groups fleeing the expansion of the Han but also for an assortment of exiled officials, criminals escaping arrest and banned religious sects, as well as Han refugees from famine or war in other provinces. During the Ming dynasty more than one million Han people were displaced there, many of them forcibly. Another four million migrated there between 1750 and 1850. By the middle of the nineteenth century the Han population was estimated at 40 to 60 percent of Guizhou's inhabitants [Jenks 1994].

During the early eighteenth century, the Yongzheng emperor sent Prince Ortaï at the head of a large army to subdue the province, and in 1731 the prince claimed to have achieved pacification. In fact he encountered major resistance, especially from the Miao in the east.

Many areas reclaimed their *de facto* autonomy as soon as imperial troops returned to their fortified positions in the valleys. The campaign resulted in the massacre of huge numbers of Miao people, however, creating resentment that seeded rebellions, which continued for around 150 years. A popular saying held that: 'In Guizhou [there is] a mild revolt every 30 years, a major rebellion every 60 years'. In 1872 Guizhou came under the direct rule of the Qing dynasty, after a period of anarchy which lasted 20 years and saw the death of about half of the population. Today the Han represent the majority while other ethnic groups account for around 36 percent of the population.

1.5 Mutual influences and exchanges

The isolation of the mountain communities was always relative, since there was migration, contact and exchange amongst the Han and non-Han groups. For example, at the Liye archaeological site in Longshan county,²⁹ which dates to the Qin dynasty (BCE 221–206), bamboo slips bearing records of local production of military clothing for imperial armies were discovered, as well as weaving utensils and pottery with imprints of fabrics woven from palm fibre and hemp or ramie.³⁰



Historical records mention that in 221–222 CE, the counties of Youshui and Qianyang (also in the Longshan area), were administered by the Shu kingdom, which was later assimilated by the Qin. Liu Bei, the founder of Shu, is said to have sent envoys carrying gold, silver and Shu *jin*³¹ textiles to the tribal chiefs of the neighbouring Wuling area. The legendary military strategist Zhuge Liang (also known as the Marquis of Wu), invaded the Tongren area (now in Northeast Guizhou) in 223 CE. He is said to have taught local women, probably the ancestors of present-day Miao or Tujia, ‘how to weave *jin*’ and ordered the plantation of mulberry trees for sericulture. Regardless of what his precise contribution to weaving was, Zhuge’s interest in textile production in the region seems to be based on fact³² and survives in the name of local woven silk cloth called *Wuhoujin* ‘Marquis of Wu brocade’.³³

As noted, some ethnic groups submitted to Han cultural influence earlier than others. This was probably primarily a matter of geography. Two groups, both living on the outer fringes of Guizhou,

the Maonan and the Tujia,³⁴ were the subjects of early acculturation and sinicization, as a result of which they have almost completely lost their original languages today. It is notable that the brocade patterns woven by both groups are characterized by figurative motifs including animals and birds (both real and mythical), which differentiates their work from that of other local ethnic groups living in remoter and more isolated areas, who tend to prefer abstract geometric motifs (with the notable exception of aprons woven by the Miao of Shidong in Guizhou). In the case of the Maonan (and sometimes the Tujia), what is even more striking is that the figurative motifs are superimposed on a woven monochrome background consisting of an abstract geometric lattice. This arrangement is a feature of the classical Han decorative style (Fig. 4),³⁵ and it is likely that these instances share a common origin.

One example of the transfer of weaving culture from one ethnicity to another occurred amongst the culturally and linguistically unrelated Qociong (Gexiong) Miao and the Tujia, living on both sides of the northern border between Hunan and Guizhou provinces. Today, these groups use exactly the same type of brocade loom (see Chapter 6, Section 6.2). In this instance the likely cause is sharing the same territory for centuries, with associated opportunities for intermarriage and exchange. It seems likely that the Tujia acquired the loom technology from the Miao, as the ‘tubes-and-warps-layers’ patterning system (explained in later chapters) is a characteristic of the Miao and Yao people. We will see a few other examples of this kind of transfer when we examine loom technology in more detail.



Fig. 5 Detail of a Tujia child's bedcover (see Chapter 6, Section 6.1) displaying the 'white tiger' motif.

1.6 Early populations through the eyes of Han writers

There are numerous references in ancient Chinese texts to non-Han populations living in Southwest China but, as with the term *baiyue* discussed above, the names given are either blanket terms applying to all the peoples living in a certain region, for example 'aboriginal people',³⁶ 'Southern barbarians',³⁷ or names arbitrarily given by outsiders that reveal little about their ethnic identity, such as 'Luoluo'³⁸ for the Yi, and 'Zhongjia'³⁹ for the Buyi. This makes it difficult to determine exactly which ethnic groups lived in which areas at a given time. Only by the late Ming and early Qing, with the appearance of illustrated ethnic albums called *baimiaotu* (see below), does the Chinese literature begin to provide useful, if rather confusing, data. The Miao are a partial exception to the rule as they are identified in early Chinese texts either as the 'Three Miao' (*sanmiao*) or 'Miao barbarians' (*miaoman*).⁴⁰

Accounts of the origins of Chinese civilization, such as Sima Qian's 'Memoirs of the Grand Historian'⁴¹ albeit semi-legendary in nature, reflect its multi-ethnic beginnings. The 'Nine non-Han Chinese tribes',⁴² which included the *sanmiao*, are said to have come from the south and to have been defeated by China's first emperor, Huangdi, who is said to have reigned during the third millennium BCE. Huangdi's people, the Huaxia, supposedly went on to form the

dominant Han Chinese group. Some of the non-Han groups, such as the Miao, rejected or refused to submit to the Han, taking refuge in isolated areas such as the mountainous areas of Southwest China. Such groups were referred to as *sheng* 生 ('raw') by the Han, suggesting a lack of acculturation. Other groups, who were referred to as *shu* 熟 ('cooked'),⁴³ learned Han language and customs and sometimes acted as intermediaries between the local Han and the 'raw' or 'untamed' ethnic populations. While these early accounts are semi-legendary as noted, they capture the spectrum of interactions between the Han and other ethnicities. The terms *sheng* and *shu* continued to be used by Chinese writers until the twentieth century to characterize the state of relations between the Han and various non-Han groups.

According to Tian Ming [2008], the Tujia, a Sino-Tibetan language speaking people whose brocade loom is discussed in this book, are said to be descendants of the Ba people, who are mentioned in Chinese texts. The Ba culture is first mentioned in the *History of the Later Han*⁴⁴ (written in the fourth century CE), and prospered in what is now Eastern Sichuan during the Spring and Autumn period, but gradually declined during the Warring States period under the pressure from the neighbouring Chu and the Qin, who conquered their state in BCE 316. After being defeated, some of the Ba people are said to have migrated downstream along the Yangzi river, finally settling in Northeast Guizhou, Northwest Hunan and Southern Hubei. Early Chinese records such as the *History of the Later Han* and the *Classic of Mountains and Seas*⁴⁵ mention them as living in Wulingshan (present day Northeast Guizhou and Northwest Hunan) and paying tribute in the form of textiles to the imperial court during the late Han dynasty. In the 1990s, Tujia weavers were still decorating infant's brocade bedcovers with stylised white tigers (Figs. 5 and 6), a symbol revered by the Ba as a protective deity.

1.7 The 'Hundred Miao Pictorial Albums' (*baimiaotu*)⁴⁶

The gradual conquest of territories in Guizhou during the Ming and Qing dynasties coincided with a growing interest in the newly incorporated minorities. This is reflected in the ethnographic observations and publications by Han officials posted in that province. These accounts appear somewhat fantastic to the modern reader and are sometimes based on second or third-hand information, but they document a growing awareness of ethnic distinctions. The first of these accounts, *Things Heard on the Southern Frontier*⁴⁷ by Tian Rucheng, was published in 1560. It was followed by the *Memoirs from Qian*⁴⁸ written in 1608 by Guo Zizhang, who was governor of Guizhou from 1599 to 1608. By the late seventeenth century the first images

representing ‘ethnic life’ appeared: consisting of woodblock illustrations accompanying the three editions of the *Guizhou Gazetteer*.⁴⁹ Around the same time the first albums of ethnicities called the *baimiaotu*⁵⁰ appeared (Fig. 7). These works consist of hand-painted watercolour sketches accompanied by short descriptive texts, the first edition being issued in 1761. As knowledge about indigenous life progressed, so did the number of ethnic groups recorded in the albums, which increased from 13 in 1608, to 30 in 1673 and to 82 by 1834.⁵¹ The earliest Western accounts of the region appeared considerably later, from the late nineteenth century onwards.⁵²

1.8 Shifting identities: modern designations of ethnicity

Despite much progress, ambiguity in the descriptions of ethnic groups and the status of some peoples persists to the present day. The term ‘Yao’, which appears for the first time in Chinese records dating from the seventh century, is a frequent source of confusion and some deliberate manipulation. The Yao people were given the ‘King Ping Charter’ by Emperor Xiaozong of the Song dynasty in 1163, a document that allowed them to travel and settle freely in mountainous areas as well as to be exempted from taxes. This exemption motivated some Han landowners to find subterfuges in order to be officially considered as Yao.⁵³ During our research we visited the Pingdi Yao (‘Yao of the Plains’) in Jianghua in Hunan. The members of this group call themselves ‘Yao’, but acknowledge that they do not know the Yao language, speaking instead the Cantonese dialect of Wuzhou, in Guangxi.



Fig. 6 The 'white tiger' on a Tujia religious woodblock used to print votive images at the occasion of a child's birth ceremony.

The Miao village of Antai in Northern Guangxi provides a further illustration of the complexity of ethnic identity in some areas. While studying weaving traditions there we found that different Miao families settled in the valley in successive events over several hundreds of years, the earliest more than six centuries ago and the most recent in 1949. One family described how they migrated to Antai about four to five centuries ago, and produced a genealogy proving that they originated from Anhui province. Their records showed that they were originally not Miao but Han, who escaped from famine, war or other difficulties and adopted the Miao customs and language, including their brocade weaving techniques (Chapter 4, Section 4.2).

Similar processes are still taking place in modern China. Since ethnic minorities are currently allowed some privileges denied to the Han such as the right to bear two children, many Han people living in minorities' areas have managed to change their status so that their official identity cards indicate a non-Han ethnic origin.



Fig. 7 (Above) an illustration from a baimiaotu, circa 1820. Three looms (below) from other contemporary baimiaotu: these three illustrations are intended to represent the loom of the same ethnic group (the Hongzhou Miao of Liping county in Southeast Guizhou). The differences (and the impracticalities of the looms depicted) illustrate the 'apocryphal' quality of these works. Chris Hall collection.

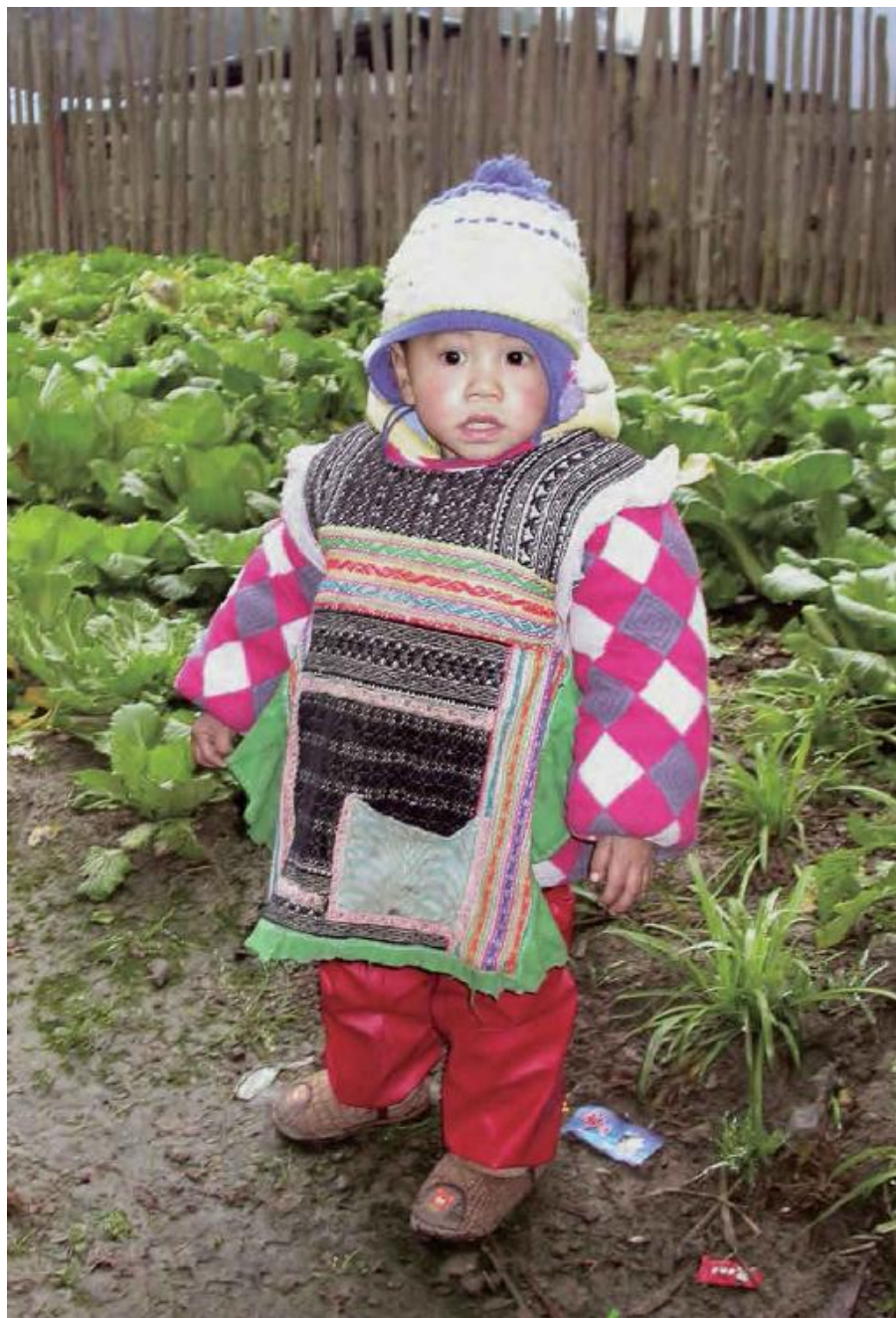


Fig. 8 Dress amongst minority groups in Southwest China today is an eclectic mixture of traditional and contemporary elements, which rarely conforms to a romantic ideal of rural life. This Dong child from Zhuanshui in Hunan (see Chapter 5, Section 5.14) is wearing a traditional tunic made of hand-woven brocade, finished and edged with commercial fabrics, on top of market-bought clothing.

1 See summaries such as Charles Higham's *Early Mainland Southeast Asia* [2014] and Peter Bellwood's *History of the Indo-Malaysian Archipelago, First Farmers and First Migrants* [2005, 2007, 2013] and *The Peopling of East Asia*, edited by Roger Blench, Laurent Sagart and Alicia Sanchez-Mazas [2005]. The broad picture of the genesis of rice and millet farming in the region between the Yangzi and the Yellow River (Huang He) and the subsequent radiation of farming cultures into much of Asia is well accepted, but the details and the processes involved, as well as the relationships between the major language groups, are still the subjects of debate.

2 Coedès [1968]

3 Most linguists place the Austronesian and Daic languages in separate families. Laurent Sagart [2005] and Roger Blench [2013] regard the Daic languages as a subgroup of Austronesian.

4 Sapir [1916], Dyen [1956], Diebold [1960].

5 Terrien de la Couperie [1887] was one of the first to highlight the ethnic diversity of the Southwest and to discuss the relationships between the various languages and ethnicities. de Lancey [2001] credits de la Couperie with the notion that 'many of the features of Old Chinese came about as a result of contact between the language of Shang (and/or possibly Zhou) conquerors and an indigenous population'.

6 See Blench et al [2005]. Eberhard [1969, 43–44] mentions the presence of the Liao, Yao and Tai groups in Southern China during the Neolithic.

7 Ethnologue [2015].

8 Blench [2014b]

9 The term 'Han Chinese' only came into use in relatively recent times, though we also use it to refer to earlier periods for the sake of convenience. The term 'Han' referred in the first instance to the Han kingdom during the Warring States period, and secondly to the Han dynasty. Hostetler [2001] writes: 'In the eighteenth century the term *Hanren* (Han people) referred to those people who considered themselves descendants of the Han dynasty ... Since the nineteenth or early twentieth century, the term *Han* has come to refer to anyone who is, appears, claims, or is assumed to be, ethnically Chinese.' Before the twentieth century the people who now call themselves *Han* mostly referred to themselves as *Huaxia* or *Huaren*. For more discussion, see Moser [1985]. Our use of the term 'Han' includes speakers of the various dialects of Chinese, and their antecedents.

10 Hostetler [2001] writes: 'Although the term *Zhongguo* (as China is referred to in present times) is found in ancient Chinese texts, it came to be used consistently to refer to a unified China only relatively recently. For early periods the term is more appropriately translated as the 'central states'. Earlier terms included ... *Zhonghua* (Central [Cultural] Florescence), *Shenzhou* (the Spiritual Region), *Jiuzhou* (the Nine Regions) and *Zhongtu* (the Central Land).'

11 Lemoine [1978, 731–732] writes: 'Until 1949 they were known as *bianjiang minzu* 边疆民族 ('border' or 'frontier' populations). For Chinese scholars, this concept of 'border' applied to both the interior and the periphery of the country, it was synonymous with areas improper for Han habitation ... With the growth of the Han ethnic group through the centuries, invasions and migrations, these frontiers tended to be pushed back, the Han people taking possession of remoter arable areas, even if it meant leaving behind some internal borders, forming the last bastions of aboriginal communities. 'Civilisation' and 'Barbary', in a complementary relationship, were thus able to continue to rub shoulders for centuries.' (our translation).

12 韁縻 Xie Xiaohui [2012] translates this term as 'bridle and halter'; Herman [2006]

prefers ‘haltered and bridled’.

13 Hermann [2006].

14 For further reading about the history of Southwest China’s ethnic groups within the imperial order see Hostetler [2001], Jenks [1994], Lemoine [1978 and 1991], Siu-woo Cheung [1996].

15 土司.

16 Herman [2006, 137]: ‘During its 276 year history, the Ming state ... bestowed 1,021 *tusi* titles in Yunnan, Guizhou and Sichuan... in Sichuan 95 percent of the 343 *tusi* titles were military-rank *tusi* titles;... in Guizhou 83 percent of the 244 *tusi* titles were military-rank *tusi* titles.’

17 Herman [2006, 145] refers to a chapter of the 炎徼紀聞 where Tian Rucheng writes about a *tusi* named Yang Hui who was the 24th hereditary ruler of the Bozhou domain in Guizhou.

18 Herman [2006, 139]: quoting Wang Zou: ‘*Tusi* are the sole authority in their areas. They determine matters of life and death and their decisions cannot be countermanded, not even by Ming officials.’

19 土流并治, or: ‘local officials rule local people’ 以土官治土民.

20 改土归流.

21 Hostetler [2001]: ‘During the century spanning 1660–1760, the Qing empire doubled the amount of territory it controlled.’ Wu Xingfu [1986] writes: ‘With the relaxation of the frontier [苗疆 in Western Hunan], Han immigrated into former Miao land. From Kangxi 43 [1704] until Qianlong 30 [1754], the population of Qianzhou 乾州 grew from 2557 to 5110. With a limited amount of flat fields in that mountain area, the competition grew fierce between the original inhabitants and the new settlers; some taking over land that the Miao needed for their survival.’

22 Wu Xingfu [1986] indicates that the Miao frontier 苗疆 of Northwest Hunan comprised the districts of 永绥 Yongsui (today 花垣 Huayuan), 乾州 Qianzhou (today 吉首 Jishou), 凤凰 Fenghuang and 松桃 Songtao (located in present-day Northeast Guizhou).

Herman [2006] mentions, for example, the ‘inner frontiers’ of Shuixi 水西 in Northwest Guizhou (west of Yachi river, with Guiyang as capital, dominated by the An *tusi* family) and Bozhou, under the control of the Yang family.

23 Herman [2006, 146]: ‘At the beginning of the Wanli reign (1573–1620) there were 228 independent *tusi* estates in Guizhou, but by the end of Ming rule in 1644 there were only 170.’ But he adds that: ‘the original power brokers [*tusi*] remained on the scene and continued to dominate local politics in areas populated primarily by non-Han peoples.’ Wu Xingfu [1986] notes that the *gaitu guiliu* reform affected more strongly the *sheng* population as they managed to remain outside of the control of the *tusi* until the early eighteenth century. As a result, having never been subjected to any sort of administration, taxes or corvée, the imposition of direct imperial authority proved a very difficult and radical change, which provoked numerous uprisings.

24 Herman [2005, 135–168]: ‘Between 1400 and 1800, China’s Southwest Frontier (the present-day provinces of Guizhou, Yunnan and the Southern part of Sichuan province) was transformed from a poorly understood and seldom visited semiperiphery into an integral part of the Chinese empire. ... It also changed from a frontier governed during the Yuan (1271–1368) and Ming (1368–1644) dynasties by a multitude of non-Han and Han leaders, many of whom were recognized by the Yuan and Ming states as *tusi*, or native officials, into a region governed increasingly

in the late Ming and Qing (1644–1911) dynasties by state appointed government officials.’

25 百越.

26 *Lüshi Chunqiu* 吕氏春秋.

27 The *baiyue* have been linked with various present-day groups, including Daic and Austroasiatic speakers, but since the identity of the *baiyue* is unknown and their language(s) are unrecorded, such links are speculative.

28 Sources of population data: government censuses 人口普查中国民族人口资料, from 2000 and 2010.

29 里耶 Northwest Hunan, situated in the heart of present-day Tujia culture.

30 Tian Ming [2008, 9].

31 The Chinese character *jīn* 锦, which also means ‘elegant’, is formed from the characters *jīn* 金 which means ‘gold’ and *bó* 帛, meaning ‘silk cloth’. The term *jīn* is widely used in Chinese writings as a general term for sumptuous, decorated textiles. As mentioned in the Preliminary Note, this term is usually translated as ‘brocade’. Where it occurs in early writings it can be taken as an indication of the presence of luxurious, decorated textiles, however it does not refer to any particular weaving technique and may be woven of materials other than silk [Cyrus-Zetterstrom 1995]. It can correspond to a variety of structures including warp-faced compound tabby and weft-faced compound tabby. Today, minority groups in the Southwest use the related terms *jīn*, or *zhìhuā* (patterned weave 织花 to describe their brocades, which are mostly plain (tabby) weave structures decorated with supplementary wefts.

32 Vainker [2012, 56]: ‘Private silk brocade production was encouraged by Zhuge Liang, who set up *jīnguan* (brocade offices) in areas he conquered’.

33 Tian Ming [2008, 25].

34 Xie Xiaohui [2012]: ‘The Miao, especially those on the La’er Hills, largely kept away from Han society, in which the magistrate held central, if sometimes only nominal, authority. The Tujia, however, even as they maintained their independence under the rule of the *tusi*, had close contact with the Chinese imperial state, serving as mercenaries in the Ming and holding military positions in the Qing. By the nineteenth century, more and more Tujia had genealogies and ancestral halls, practised ancestral sacrifice, and were actively enrolled in the Hunan militias, which were formed to counter the Taiping armies. In many ways, the Tujia way of life was no different from that of the Han.’

35 See also Zhao Feng [1999, 218, ill. 07.03b].

36 *Turen* 土人. Xie Xiaohui [2012] notes: ‘“Tujia”, as a name of the ethnic group, was used only after the national ethnic identification in the 1950s. Before that time, the word *turen* was widely used to describe people living in the region now inhabited by the Tujia minority. However, *turen* in Ming and Qing documents refers to ‘people in the domain of the *tusi* (native officials)’, who were locals, or natives, rather than outsiders (*ke*, *kemin*). The relationship between Tujia and *turen* is very complicated and not readily reduced to ethnicity. Not all of the descendants of people who were ruled by *tusi* are Tujia. When the Baojing and Yongshun *tusi* were abolished in 1727 and 1728, the local people were registered under three categories: Turen, Han, and Miao.’

37 For example Nan Yi 南夷, Liao (僚 or 獠, Pu 濮, Puman 濮蛮.

38 裸羅.

39 猺家.

40 三苗 or 苗蠻.

41 *Shiji* 史記.

42 *jiuli* 九黎.

43 We follow convention in translating these terms as ‘raw’ and ‘cooked’, but as Xie Xiaohui [2012, 133] points out ‘there is no indication that the food analogy applies to natives any more than to domesticated and wild animals.’ She prefers ‘tamed’ and ‘untamed’. In this context Hostetler [2001, 105] provides a revealing map of Guangxi in 1721, which shows parts of Southern Guizhou marked as *shengmiaojie* 生苗界 (‘border with *sheng* Miao territory’). Lemoine [1978], quoting Inez de Beauclair: ‘The adoption of a [Chinese] clan name marked the transition between the *sheng* status, ‘raw’ or ‘savage’, to the *shu* status, ‘cooked’ or ‘civilised’...’.

44 *Houhanshu* 后汉书.

45 *Shanhaijing* 山海经.

46 Hostetler [1995, 2001], Tapp and Cohn [2000], Du Wei [2002], Yang Ting [2004], Li Hanlin [2001], Liu Feng [2004].

47 *Yanjiao jiwen* 炎徼紀聞.

48 Qianji 黔記. ‘Qian’ corresponds roughly to present-day Guizhou.

49 *Guizhou Tongzhi* 貴州通志.

50 In this context ‘Miao’ is a blanket term for non-Han peoples in Guizhou including the Yi, Buyi, Dong, Yao, Gelao as well as the Miao.

51 Hostetler [2001].

52 Early writings by Western authors on this region include Clarke [1911], Savina [1924], de Beauclair [1946, 1970] and Bernatzik [1947].

53 Lemoine [1991].

Chapter 2: textiles and looms in ancient Chinese culture

This chapter summarizes what is known about textiles and weaving technology in ancient China, based on texts and archaeological remains. Our account is necessarily based around Han Chinese culture and textiles, since both historical sources and archaeological evidence revolve around these aspects. Nevertheless there is a great deal of information in these sources that is useful for the study of textiles in a wider, regional context. As part of this summary we provide a critical review of the evidence for the development of loom technology, and provide some new interpretations of archaeological material, based, in part, on our understanding of the looms used by minority groups today.

2.1 The social and political role of textiles

Ancient sayings illuminate the central role that weaving played in Chinese society. Weaving was regarded as part of the natural order of things, the maintenance of which was regarded as a matter of supreme importance. The saying ‘Men plough and women weave’¹ summarises the daily life of the common people. It also refers indirectly to their relationship with the administration, since during the Han dynasty individuals were taxed according to gender: men paid in grain and women in textiles or yarn. Another version of this saying, dating to the Warring States period (BCE 403–221)² holds that: ‘If a husband does not plough, famine will ensue, if a woman does not weave, cold and misery will follow’.³ Amongst the ethnic groups of Southwest China, the Tujia people had a similar proverb, emphasizing the role of brocade: ‘If a girl cannot weave patterned textiles, she has been raised in vain’.⁴

The expansion of the role and importance of the aristocratic class that occurred during the period from the Spring and Autumn period to the Han dynasty created a demand for luxury costumes that communicated the status of the wearer, and textiles consequently acquired value as goods for gifts or for commerce. This situation

developed to such an extent that not only textiles, but also skilled weavers themselves – most often slaves – became prized commodities, and were offered as gifts for weddings, alliances, tokens of allegiance or tribute exchanged between rival kingdoms.⁵ As a consequence of these practices, looms and weaving techniques, especially for luxury textiles, began to circulate beyond their local confines during this early period.

2.2 Textiles as currency

The role that textiles played in economic exchanges is further attested to by terms describing cloth or fibre in modern Chinese usage that originally designated monetary units in ancient China. *Bu* 布, the common term for cloth in the modern Chinese, originally designated a type of coinage. There are numerous other examples.⁶ These connections are evidence of a long-standing link between textiles, currency, and the measuring and record-keeping systems that were needed for administering taxation and tribute.⁷



Fig. 1 An illustration from a baimiaotu, circa 1820; depicting a tusi's widow wearing garments dyed in madder, according to custom. Chris Hall collection.



Fig. 2 Indigo-dyed, hand woven, cotton jacket, Guizhou. Ethnic group unknown. This Han-Chinese derived style was widely copied and used by minority groups in the Southwest, alongside indigenous clothing styles. The influence of the tailored shape can be seen in many minority clothing styles, particularly groups living or formerly living close to Han Chinese neighbours.

2.3 Garments, textiles and social hierarchy

As was the case in many hierarchal societies, the right to wear specific garments and textiles according to one's social status was regulated by sumptuary law in ancient China. The fibre, colour, patterning and weave type, as well as the shape and size of articles of clothing were precisely stipulated. The specifications of garments according to social ranks were listed in the *Book of Rites*, referring to social organization under the Zhou dynasty (BCE 1046–771). During the Han dynasty, only leading civil servants and members of the imperial family were allowed to wear polychrome patterned silks, while merchants were specifically prohibited from doing so. The *Old Book of the Tangs* includes a description of the Sui society (immediately preceding the Tang) where it is recorded that: 'In the sixth year of the Daye reign of the Sui dynasty (610 CE), the colours were indigo blue for officials, white for commoners, black for merchants and butchers, yellow for officers and soldiers.'⁹

In contrast, there is very little information about codes of dress (if any existed) amongst the members of non-Han societies in ancient times. One exception is a mention in a *baimiaotu* gazette published in 1820. This states that amongst the Yi (referred to in this context as 'Luoluo'), who were one of the most strictly hierarchical groups, aristocratic women were granted the privilege to wear red dresses dyed with madder. However the writer mentions that the women concerned were the widows of a deceased *tusi*, and therefore probably belonged to a sinicized family¹⁰ (Fig. 1). In most cases it is likely that the

sophistication of costumes in a given community depended mainly on wealth rather than official edict. The choice of colour and motif for most non-Han groups was probably a matter of ethnic identity, just as it is today.¹¹

The importance of dress as a badge of identity is illustrated by a drama we witnessed in 1989, which played out between two Miao villages located about 50 kilometres apart. During the planning for the wedding of a girl from one village to a boy from the other, a problem arose over the colour of embroidery decorating women's jackets to be worn during the ceremony. The family of the bride traditionally wore costumes adorned with red embroidery and wished to wear this colour at the wedding, which was to take place in the groom's village, where green embroidery was the traditional colour. A refusal and a stand-off ensued, which was only resolved after several months of patient diplomacy, the groom's family finally agreeing with the bride's family's request.

2.4 Colourful textiles amongst minority groups

Most books dealing with ancient China propose a rather dull and monochrome vision of the common people's wardrobe, while only the aristocracy was supposedly allowed to wear colourful garments, as sumptuary laws restricted the use of colourful and sophisticated fabrics [Langford 2009]. There may be some truth in this description in rural Han areas, where the ubiquitous dark indigo blue jacket and trousers formed the basis of every-day wear for common people even as late as the midtwentieth century (Fig. 2). It was obviously not the case however in regions further from the centre, especially in the mountains of Southwest China where richly decorated and multi-coloured costumes were still worn on a daily basis until the late twentieth century.

The two Dong costumes in Figs. 3 and 4, dating from the mid-nineteenth century or earlier, provide evidence of unique local styles produced to a very high standard, displaying little or no Han aesthetic influence. Though domestic production is the mainstay of textile production in Southwest China, some richer families would hire young women from poorer families to supplement their own weaving and embroidery. These costumes, which display a large amount of handwork and consumed a great deal of silk, may be the result of such practices.

2.5 Early textiles: archaeological evidence

We present here a selective review of the archaeological evidence for early Chinese textiles, of which there is a great deal to choose from.

We will be concerned with two topics in particular: the evolution of weft-patterning, because the majority of textiles made by minority groups in the Southwest today (as well as Chinese silks) are weft-patterned, and with what ancient textiles may or may not be able to tell us about weaving technology.

The oldest surviving textile fragments in Asia come from tombs in China. They include a textile made from kudzu (*Pueraria lobata*) found at Caojieshan in Jiangsu, dating from the 4th millennium BCE. The earliest silk fragment comes from the Yangshao culture in Henan and has been carbon dated to 3650 BCE. By the Western Zhou period (BCE 1046–771) textile fragments and impressions turn up fairly frequently in excavated tombs. The fabrics from this period include plain tabby weaves; ‘twill’ weaves with small repeating motifs, and gauzes. Most are made from silk, or bast fibres, mainly hemp and ramie. Warp-patterning predominates,¹³ and there is a gradual increase in the complexity of woven motifs from Western Zhou to the Han period [Peng Hao 2013].

Until recently, it was commonly accepted amongst scholars that the oldest Chinese textiles were warp-faced, and that weft-patterning techniques were introduced in China from Western Asia via the Silk Road. The earliest model was thought to be Sogdian weaving, which itself originally travelled from Syria. These imported textiles were mainly weft-faced twill weaves (samite) with polychrome designs, including the famous pearl-roundel designs, and featured mythical animals and human figures (Figs. 5 and 6). Chinese workshops also began to produce textiles with similar designs, but initially most of these locally made versions were produced in warp-faced format. Weft-faced textiles became increasingly common during the Sui and Tang, especially those based on twill grounds. Warp-faced textiles, including both *ling* 綾 and *qi* 绮 types, continued to be the most important in terms of quantity (and therefore presumably in economic terms) throughout this period however, fading in importance after the end of the Tang.

2.6 Weft-patterned textiles from Mashan

One of the few scholars to question the hypothesis that weft-patterning was introduced from the West was the late Wang Xu, who wrote that China’s earliest patterned weavings must have been weft-faced.¹⁴ However, it was the discovery in 1982 of Tomb Number One (BCE 340 to 278) at Mashan, in Southwest Hubei province, dating from the period of the Chu kingdom, that compelled textile historians to revise their understanding of Chinese weaving history. The Chu kingdom was a distinct political entity, centred on what is now Hubei

and Hunan, but extending over a large area and including areas as far south and west as Guizhou. The most complex designs on the Mashan textiles¹⁵ are embroidered or painted, but the finds include a number of textiles with woven designs, including both warp-patterned and weft-patterned items, demonstrating that Chu weavers at this time were familiar with both techniques. Warp-patterned textiles from the Mashan tomb featured fairly short pattern repeats in the warp direction (typically 7–8 cm). These repeats were mostly simple geometric motifs or small figurative designs of mythical animals.



Fig. 3 Bai Miao (officially considered as Dong) woman's ceremonial costume, worn during courtship and at weddings; hand woven, indigo dyed and calendared cotton fabric decorated with a combination of hand stitched silk embroidery, hand woven supplementary weft compound tabby (notably the skirt panels) and appliqué. Dyed with natural colours. Jacket dimensions: 106 cm × 46 cm, skirt dimensions: 99 cm × 50 cm. Nineteenth century or earlier, Antai district, Rongshui county, Northeast Guangxi. He Haiyan collection.



Fig. 4 Dong woman's ceremonial costume, worn during courtship and at weddings: hand woven, indigo-dyed and calendared cotton fabric decorated with hand stitched silk embroidery and appliqué. Dyed with natural colours. Jacket dimensions: 115 cm × 48 cm. Nineteenth century or earlier, Yinchao 银朝 area, Liping county, Southeast Guizhou province. Private collection.

The weft-patterned finds from Mashan consist of seven woven bands.¹⁶ These were probably used either as belts or as decorative trim for robes. At the time such decorative bands were probably more important artefacts than the plainer cloth used for the main parts of the robe. Two different techniques were used to make these weftfaced textiles. One, known as *paosuo*,¹⁷ used continuous supplementary wefts, each weft ending 2–3 warps before the selvedge at each side. The wefts consist of silk floss. The other, known as *chuanrao*¹⁸ uses discontinuous supplementary wefts, which are secured on the reverse of the fabric with knots. A single discontinuous decorative weft strand was used on several rows successively (alternating with a single ground weft), until the motif was finished. At this point the weft was knotted and cut, or in some cases extended diagonally to the next motif. The motifs on *chuanrao* textiles include lozenges, hexagons, and mythical animals such as dragons and phoenixes. In the case of *paosuo* textiles the warp count is around 48 per cm, the weft count around 28 per cm; in the case of *chuanrao*, the tabby sections have around 32 warps and 22 wefts per cm, with double the density of wefts in the decorated sections.

All of the characteristics of *paosuo* and *chuanrao* are found in the contemporary minority brocade structures analysed in this book, indeed the above descriptions could stand as a summary of the most commonly found structures. These striking similarities raise the question of whether there may be some form of continuity between these early textiles and present-day minority brocades. Against this view it must be said that there are differences between these early weft-faced brocades and archaeological fragments of weft-patterned textiles from later periods. During the Warring States period and Han dynasty most of these textiles were based on tabby weave¹⁹ (as minority textiles still are today) but in textiles woven after the fifth century CE twill-ground weaves became increasingly common.²⁰

2.7 The change from warp- to weft-patterning

Despite the early occurrence of weft-patterning, it is indisputable that for a long period the majority of luxurious patterned silk textiles were produced using warp-patterning techniques. A gradual switch to weft-patterning occurred during the Sui-Tang period. If technology imported from western regions was not responsible for this change, to what can we attribute it? To answer to this question it is first necessary to review some of the characteristics of warp- and weft-patterning.

In principle, any given structure (interlace) can be produced either as patterning in the warp or patterning in the weft. In practice, there are advantages and disadvantages to each method. To produce warp-patterning, yarns with contrasting colours must be included in the warp when this is set up on the loom, and brought to prominence on the surface of the woven textile by raising warp yarns selectively during weaving. This is an efficient method for producing a textile with uniform repeating motifs over the entire roll of cloth. For making long rolls of monochrome damask, for example, with small pattern repeats, it probably represents the ideal. Warp setup requires care, but once the warp has been created the weaving proceeds rapidly, since no colour changes need to be made in the weft. This system probably suited the needs of workshops producing *qi* and *ling* damask weaves to imperial order. With increasingly complex polychrome designs however, the limitations of warp-patterning became apparent. Once the warp is set, the weaver can produce only one design in one set of colours on the entire roll of fabric, since the position and colour of a warp yarn cannot easily be changed during weaving. Mistakes in warp placement are also difficult to correct and will recur along the entire length of the fabric.

With weft-patterning, a warp of a uniform colour is used. The design

is made by adding coloured wefts and bringing these to prominence on the surface of the finished textile by allowing them to ‘float’ over the warps in selected areas. The basic weaving and patterning process (raising selected warps, inserting wefts) is the same as for warp-patterning, but the weaver has a more demanding role, since she must select a weft of the correct colour for each insertion. Mistakes are easily corrected however and affect only a small part of the finished roll, unless a pattern recording system such as a *huaben*²¹ is in use. Colours and designs can be changed at will as the weaving progresses, and several different designs can be produced on one roll of cloth.



Fig. 5 Tang dynasty samite fragment. Chris Hall collection.



Fig. 6 Sui dynasty samite fragment. Chris Hall collection.

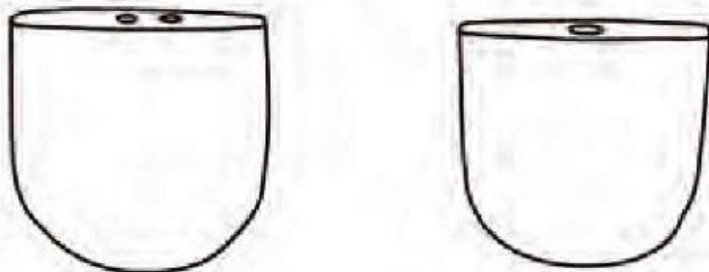
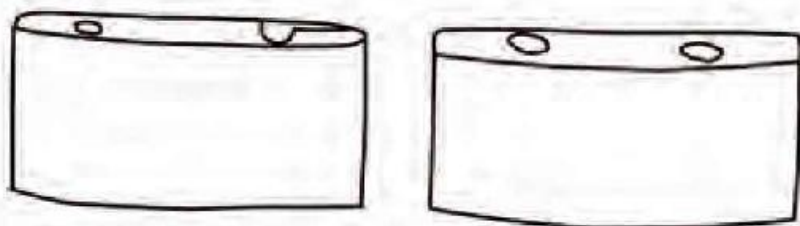
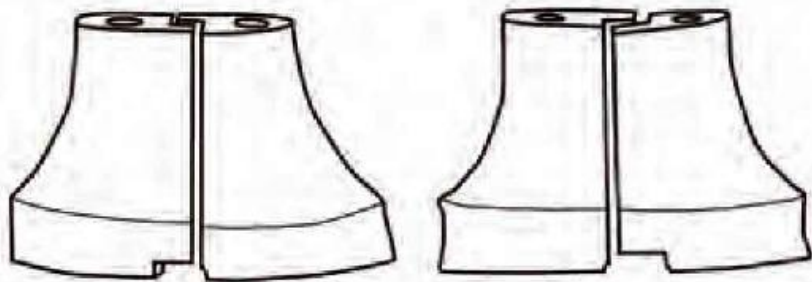


Fig. 7 Drawings of loom parts made of jade, from the Liangzhu culture (late Neolithic period, around BCE 3300–2300), found in a tomb at Fanshan in Zhejiang province. They appear to be finials that originally decorated wooden loom parts. The two pairs of interlocking components at the top of the illustration seem to have formed part of an interlocking cloth beam, closely resembling cloth beams used by aboriginal Taiwan weavers today. The holes at the top of the finials were for wooden pegs where a backstrap would have been attached. The pair of components in the centre appear to be finials for a warp beam, while the pair below appear to be finials for a flat beater for beating-in the weft. These remains constitute the earliest definitive evidence of backstrap weaving in Asia.

An additional factor is the use of a reed as a warp spacer. This device controls the spacing of warp yarns, and makes the job of producing a

weft-faced textile considerably easier. The date of the introduction of the reed is unknown, but our analysis in Part III suggests that it occurred fairly early in the development of looms with frames. How widely this invention was known and used in pre-Tang dynasty textiles is unknown at present: an analysis of warp regularity and spacing amongst a sample of early textiles from different periods might shed more light on the issue. To summarise, both weft-based and warp-based patterning were known in China from an early period (pre-Han dynasty). The choice of warp-patterning for most early textiles was probably partly a matter of tradition, and partly a matter of commercial and economic considerations. Similarly, the switch to weft-based patterning was probably driven by the demands of the market (or of imperial clients) for more complex and varied designs, in which the stimulus of imported textiles undoubtedly played a role.

It is important to bear in mind that this discussion concerns organized workshops producing textiles for sale and/or for use by the imperial court and aristocracy. Quite different dynamics applied to weavers at the local level producing for their own, traditional uses, such as the domestic weaving practiced by minority groups in the Southwest (and, at one time, over a much wider region of China). The concerns of such weavers were in some respects the polar opposite of the operating principles of the commercial silk weaving workshops. Questions of speed and efficiency do not seem to have been significant factors, as our own fieldwork shows. We will return to this point in Chapter 3.

2.8 Weft-patterned brocade in ancient Southern China

As noted, the Mashan textiles establish the fact that weft-patterning techniques were present early in the history of Chinese textiles. It may also be significant that some of the earliest known Chinese weft-patterned brocades have been found in Hunan and Hubei provinces. The surviving diversity and complexity of brocade weaving techniques and patterns in the Southwest, overlapping or neighbouring the place where the Chu kingdom flourished for hundreds of years, is suggestive of continuity. Dieter Kuhn, discussing complex weaves such as *jīn*, writes: 'Most of the reliable archaeological evidence from pre-Han times points to the state of Chu (Hunan, Hubei and Southern Henan) as the region where innovations originated.' [Kuhn 1995]. He adds: 'Hunan and Hubei were the provinces which yielded the most spectacular silk fabrics from the Warring States and the Western Han periods.'

2.9 The evolution of Chinese looms: a review of the literature and a re-evaluation

Summarizing what is known and what has been written on this topic presents some challenges. The information on which it is based is sparse and fragmentary, especially from the early period, and there are considerable differences in interpretation amongst textile scholars. From the period before the Han dynasty there are relatively few archaeological remains of looms, together with a few ancient texts and poetic references, and indirect evidence from textile remains. It is not until the Song dynasty that we have accurate drawings of looms that enable us to identify unequivocally what type of loom was in use.

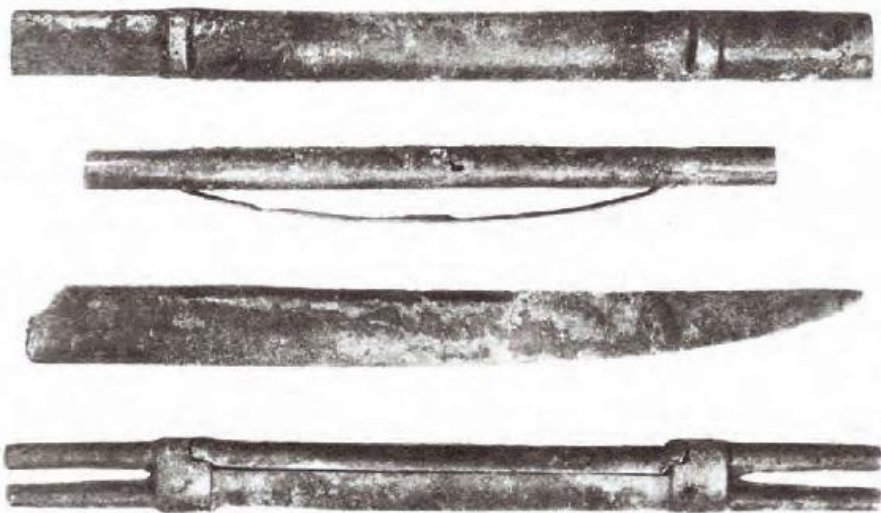


Fig. 8 Bronze loom parts from the Dian culture (around 2000 years ago). From the top: warp beam, with flat paddle-shaped ends for bracing against the feet, shed stick with wire to prevent it slipping out of the warp, sword-beater, cloth beam in two halves for clamping the warp, with forked ends for attaching a backstrap Tomb 17, Shizhaishan Report Vol. 2 Pl. 98.1. After Vollmer [1979, 86].

2.10 Archaeological remains (pre-Han period)

The oldest known remains of textile-making equipment are fragments from Hemudu, an archaeological site in present day Zhejiang province on the Southeast coast of China. This waterlogged site was a hut settlement, the basal (oldest) layer of which dates to around BCE 5000, corresponding to the Neolithic period. Excavated remains reveal that the inhabitants of Hemudu cultivated rice, and made pottery and stone tools. In this respect they were similar to other early farming cultures at the same period in central China [Bellwood 2007]. What makes the Hemudu remains remarkable is the fine preservation of bone and wood implements, an extremely rare occurrence in sites of this age. These include a number of implements that seem to relate to weaving, including flat wooden blades that might have been used as

weft-beaters, pointed sticks, bone needles and hooks of various kinds. These have generally been interpreted as loom components, and reconstructions as both simple back-tensioned looms and frame looms have been proposed.²² In our view it is likely that some form of loom was in use, and a simple backstrap loom is the most likely interpretation, but there is not enough evidence to deduce the precise form. We see no evidence whatsoever to support the view that the Hemudu fragments formed part of a frame loom.

Chronologically, the next important evidence of loom use comes from a tomb from the Liangzhu culture, dating to BCE 3300–2300, in an area that is part of the present day suburbs of Hangzhou, Zhejiang province. These remains consist of a set of decorative jade finials that seem to have been attached to wooden rods. In particular, two pairs of jade pieces seem to have belonged to rods that fitted together to form a clamp, corresponding very closely to the cloth beam of a backstrap loom (Fig. 7). Zhao Feng [2005] presents a reconstruction of these parts as a backstrap loom consisting of a cloth beam, warp beam and weft beater, and describes it as a ‘foot-braced backstrap loom’,²³ which seems to us to be the correct interpretation. The fact that a loom of this kind was made out of precious materials and placed in a tomb suggest that it had a particular significance to its owner and was probably an important tool in the society of the time.

After this point there is a gap in the archaeological record of simple back-tensioned looms, until we reach some interesting relics from the Dian culture (BCE 400 to 100 CE, approximately), from Shizhaishan in Yunnan province. The linguistic affiliation of the Dian people is unknown, but given the location it is possible that they were speaking a language related to present-day Daic languages. The weaving-related remains consist of a well-preserved set of backstrap loom parts (Fig. 8) made of bronze [Vollmer 1977 and 1979], and a bronze cowrie shell container. The container has on its lid a tableau of weavers using foot-braced backstrap looms, surrounding a person who appears to be an overseer, possibly the tomb occupant, seated on an elevated platform (Fig. 9).



Fig. 9 Bronze cowrie shell container depicting weavers using foot-braced back-tensioned looms. From Tomb 69 at Lijiashan, Yunnan Province. Eastern Han dynasty (25 CE–220 CE). After: China National Museum [2003, 106–107].

The Shizhaishan bronze loom parts were carefully made and the loom seems functional, but it was probably intended as a high-status burial item rather than a practical loom, in the same way that the Liangzhu jade loom components also seem to be an exalted version of an everyday item. Considered together, the loom parts and the weaving tableau leave no doubt about what the bronze loom is and how it was used. As Vollmer points out, the loom parts are essentially indistinguishable from components of foot-braced backstrap looms

still in use in Hainan and Taiwan today. As with the Liangzhu remains, this demonstrates not only that the foot-braced backstrap loom was in use, but also that the loom itself and weaving were of particular importance in Dian culture.

Considered as a whole, what can these archaeological remains tell us? Despite their fragmentary nature and disparate dates, they point to the backstrap loom as having been the predominant type in use in early times, as early as the Neolithic period. Interestingly, the evidence shows that it was used over a much wider area than it is found in today, including much of what is now central and Southwest China. It also seems likely that the foot-braced version of this loom is the earliest form, and that the version of this loom in which the warp beam is fixed to an external point is a later development. The externally-braced form of this loom still has a wide distribution today, and is in regular use in much of the rural areas of Mainland Southeast Asia (MSEA) and Island Southeast Asia (ISEA) (Fig. 10). Remarkably, the oldest form of this loom has persisted to the present day, in essentially unchanged form, in several places, including Taiwan, Hainan and parts of Laos and Vietnam. There can be few other human inventions of such durability, placing the loom the same category as inventions such as the blade, ploughshare and bow and arrow.

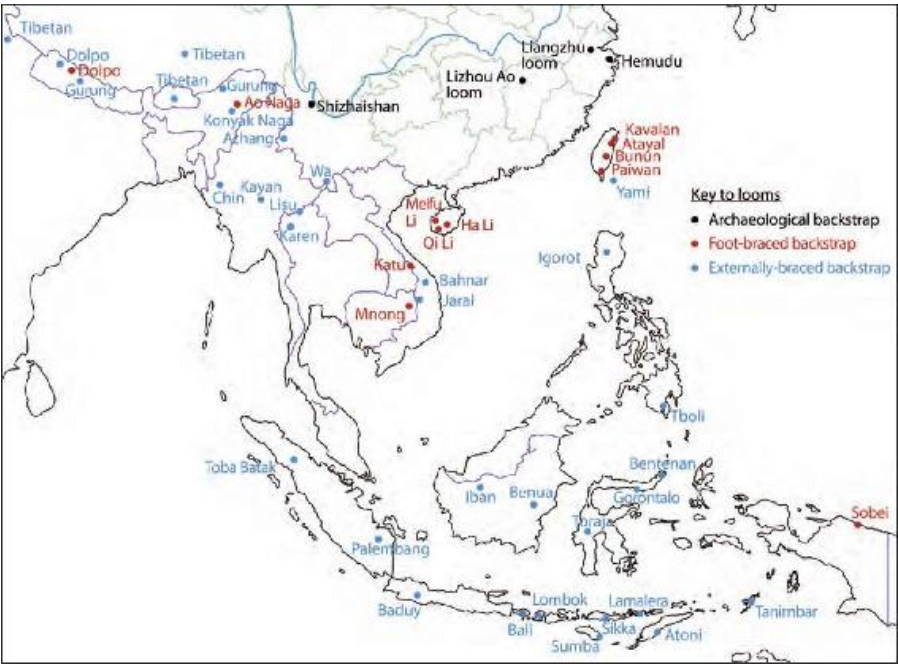


Fig. 10 The distribution of simple, frameless body-tensioned looms in Asia.

2.11 The development of looms with frames: archaeological finds

The oldest archaeological finds that indicate the use of frame looms in China consist of wooden loom parts excavated from tombs in Jiangxi province, in Jing'an²⁴ and in Guixiya,²⁵ dated to the Eastern Zhou period (BCE 770–221).²⁶ These assemblages include distinctive paddleshaped warp beams, cloth beams with characteristic forked ends, presumably for attaching backstraps, and what appear to be weft beaters. These were found together with wooden combs and various other fragments of undetermined function, and textile fragments including gauze. Most of the loom parts appear to be miniatures. They are rather crudely made, as is often the case with Chinese tomb furnishings, but they are clearly modelled on functional looms. Similar loom parts from Han dynasty have also been found in tombs from the area that is now the Guangxi Zhuang Autonomous Region²⁷ (Fig. 11) suggesting that these remains correspond to a durable and widespread type. To date, no trace of a reed has been found amongst any of these tomb remains.

Various reconstructions of this loom have been published, including two versions by Zhao Feng, one as a backstrap loom with the paddle-shaped warp beam lodged behind stakes on the ground, and another as a frame loom (Fig. 12, top and middle).²⁸ We agree with Zhao Feng that this loom cannot be a foot-braced loom since the shape and proportions are not consistent with a loom of this type, but we disagree with his reconstructions. We consider the critical evidence for interpreting these remains to be looms used by present-day Miao groups in Guizhou that feature warp beams with large paddle-shaped ends. Beams of this type are one of the defining characteristics of a group of looms with a heddle that is raised by a single foot-treadle, attached to a long Y-shaped rocker (Fig. 12). These looms also have cloth beams and beaters similar to the excavated remains. Looms of this type are still in use amongst Miao weavers from Antai, Bakai, Geyi and other areas (described in Part II), as well as weavers in places as distant as Korea and Japan (see Part III). This loom also occurs in tomb engravings from the Han period, and corresponds to a loom that we call the Han dynasty Type II loom, discussed in the next section.



Fig. 11 Wooden loom parts from Luobowan M1 tomb, Guixian, Guangxi province, Western Han dynasty (BCE 206 to 25 CE), now in the Guangxi Zhuang Regional Museum. These appear to be components of a back-tensioned loom with a frame and a long Y-shaped rocker heddle, similar to that still used by Miao weavers, as well as many

other weavers in South China and further afield in Korea and Japan. The components at the top are paddle-shaped warp beams, designed to be lodged behind two upright supports in a frame. The two beams with forked ends are cloth beams, the forks being used for attaching a backstrap. Other components appear to be beaters and other loom parts. After Feng Guangyu [2006, 104–106].

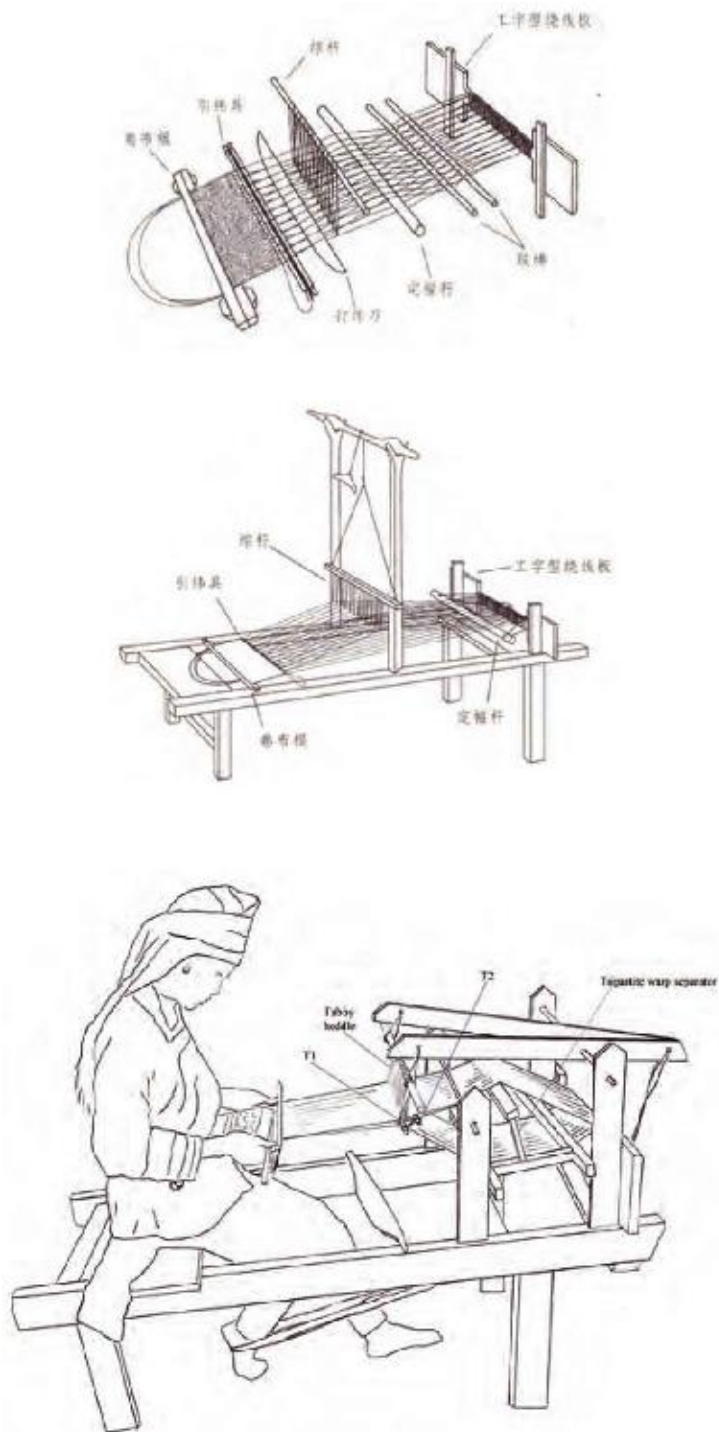


Fig. 12:

(Top and middle): reconstructions of looms from the Jing'an Tomb 靖安大墓 and from Guixiya 贵溪崖 by Zhao Feng and co-workers, based on excavated loom

components that are similar to those from the Luobowan tomb (shown opposite in Fig. 11). After Zhao Feng [2012, 68–69].

(Below): loom used by contemporary Miao weavers in Bakai (see Chapter 4, Section 4.6).

As noted in the text, we disagree with Zhao Feng's reconstructions, instead we identify this loom as one with a large Y-shaped rocker heddle, similar to the contemporary Miao loom in the lower illustration.



Fig. 13 Stone rubbing from Han dynasty tombs, showing the Type 1 loom (fixed cloth beam and two treadles). From the top:

a) origin unknown

b) *Wu Family Hall in Jiaxiang, Shandong, Eastern Han dynasty* 东汉山东嘉祥武氏祠汉画像石刻有一幅(曾母投杼图)

c) *Caozhuang, Sihong county in Jiangsu* 泗洪县,曹庄

d) *Honglou, Tongshan county in Jiangsu* 铜山县, 洪楼.



Fig. 14 Han dynasty tomb engraving from the Cao Family tomb 曹家包 in Chengdu, Sichuan; showing the Han dynasty Type 2 loom (a body-tensioned loom with one treadle).

2.12 Han dynasty tomb engravings

From Han times onwards the number of sources of information about textile technology steadily increases, including texts describing looms, tomb engravings, tomb models and paintings on brick, as well as textiles. Most authors agree that several different kinds of looms were in use by the Han period, but disagree concerning the precise mechanisms of these looms.

The Han dynasty engravings (Figs. 13 and 14) show that at least two types of frame loom with treadles were in widespread use in domestic settings. We call these Han dynasty Type 1 and Type 2 looms. The Type 1 loom appears in a number of tomb engravings from Jiangsu and Shandong. A pottery model in the Musée Guimet (Fig. 15) also seems to belong to this group, and gives us the clearest picture of the construction of the frame.

The engravers who made the tomb illustrations are unlikely to have been weavers or to have understood in detail how the loom worked (and probably copied their designs from other engravers or printed pattern books rather than actual looms), but some features of the Type 1 loom can nevertheless be deduced.²⁹ The loom had a distinctive steeply-slanting frame, mounted on a horizontal trestle, and had both a warp beam and a cloth beam fixed to the frame (in other words, it was not a body-tensioned loom). The frame has a pair of pillars rising from the centre, which look like the supports for a heddle lifting mechanism. There were two treadles that were worked alternately, though the associated linkages are not clear. No complex patterning device is present, neither is there any system for suspending a reed, so a reed, if present, would have hung loosely in the warp.

Zhao Feng³⁰ presents a reconstruction of this loom, based on the frame from the Musée Guimet model. He assumes that one treadle is attached to a heddle-lifting system, which consists of a rocker attached to the raised bar in the centre of the frame, in a complex manner. The function of the left treadle is less clear in Zhao Feng's reconstruction, but it seems to pull down a warp-depression stick situated above the warp (Fig. 16, top). This results in a workable, but (in our opinion) somewhat cumbersome loom. A different reconstruction by Xia Nai (Fig. 16, lower illustration), reproduced in several publications,³¹ has both treadles linked to the heddle lifting mechanism. By referring to present day loom mechanisms, however, we propose a somewhat different mechanism.

2.13 Reconstructing the Han Dynasty Type 1 Loom

There are several looms in existence today that share some characteristics with the Type 1 loom, including the Tujia loom from Longshan, the Zhuang loom from Napo and the Miao loom from Zhaoxing (see Part II). Of these, the Zhaoxing loom provides the key to understanding the mechanism of the Han Type 1 loom. We propose that the second treadle in the Type 1 loom was employed (as in the Zhaoxing loom) to open the natural shed by pulling down a shed stick inserted in the warp (Fig. 17). It is neither linked to a warp depression stick located above the warp, nor to the heddle lifting mechanism as in the Zhao Feng and Xia Nai reconstructions. Our reasoning is based on the requirements of a loom with a fixed warp beam and cloth beam, as opposed to the back-tensioned type. Opening a counter-shed with a single heddle is straightforward; the heddle only needs to be pulled upwards. Restoring the natural shed when the heddle is lowered is more difficult, since the heddle tends to 'stick' to the warps at the halfway position. When using a backstrap loom the weaver can ease the heddle back through the upper warp by leaning back to

increase the tension of the warp, but this is not possible if the cloth beam is fixed. For this reason some looms with a fixed cloth beam, such as the Zhaoxing loom, employ a device for restoring the natural shed which consists of a second treadle attached to a rod (shed stick) in the natural shed, which is pulled down to restore the natural shed opening.³² The treadles are used in a seesaw action, alternating between opening the natural shed with one treadle and opening the counter-shed with the other. We believe that the Han Type 1 loom employed this mechanism, and that this explanation best accounts for the pair of treadles and other features of the loom in tomb engravings.³³ As noted, our reconstruction of this loom is shown in Fig. 17 (overleaf).



Fig. 15 Pottery loom model from the Han dynasty, Musée Guimet, origin unknown. This is an example of the Han dynasty Type 1 loom. It has a fixed cloth beam and supports for two foot treadles. The weaver would have sat on a plank placed on the frame, in front of the sloping section. Our reconstruction of this loom is shown in Fig. 17. Image © RMN - Grand Palais/Photography Thierry Ollivier / Musée Guimet, Paris.

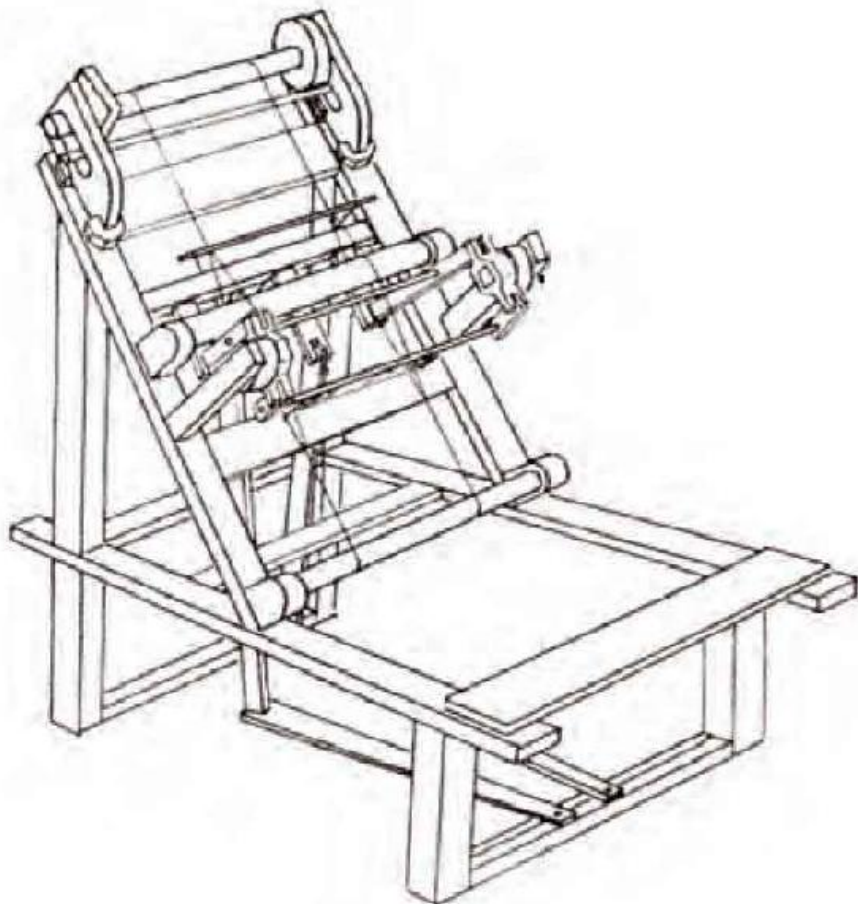
This loom may also be related to some loom types used in the Song dynasty that appear to have a similar mechanical arrangement, but with the warp frame rotated into a vertical or near-vertical orientation [Lu Wei 2012].

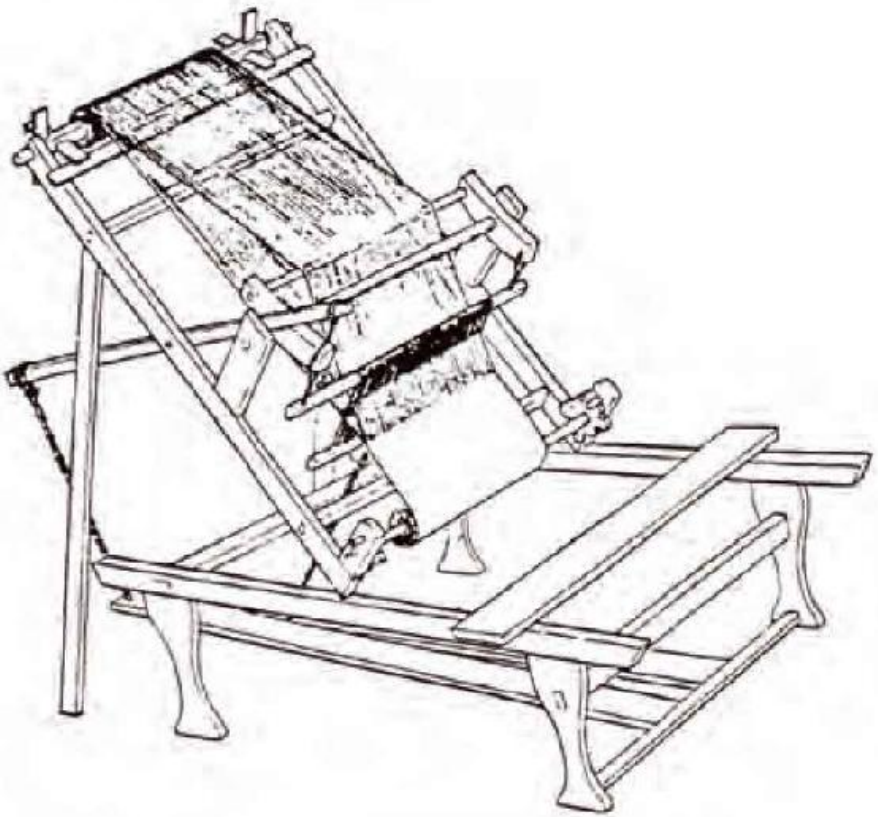
The other type of loom in the Han dynasty tomb engravings is the one that Zhao Feng calls the ‘horizontal treadle loom’, which we call Han dynasty Type 2 loom. This is depicted in the engraved murals in the Cao family tomb in Sichuan province (Fig 14).³⁴

2.14 Reconstructing the Han Dynasty Type 2 Loom

The main features of the Type 2 loom that can be discerned from the tomb engraving are as follows:

1. a frame that slopes upwards towards the warp beam at a shallow angle
2. a backstrap around the weaver’s waist (in other words, this loom is back-tensioned, as distinct from the Type 1 loom which is not)
3. a rocker located on the uprights at the back of the loom, presumably attached to the single treadle below and to a heddle (though the heddle is not clear in the original illustration)
4. a warp beam lodged in a cleft behind the horizontal and vertical members at the back of the loom, rather than being permanently attached to the frame.





*Fig. 16 Reconstructions of the Han dynasty Type 1 loom:
(above) by Zhao Feng [2006, 20, Ill.1-5]
(below) by Xia Nai [Huang 2002, 40, Ill. 4-23(2)].*

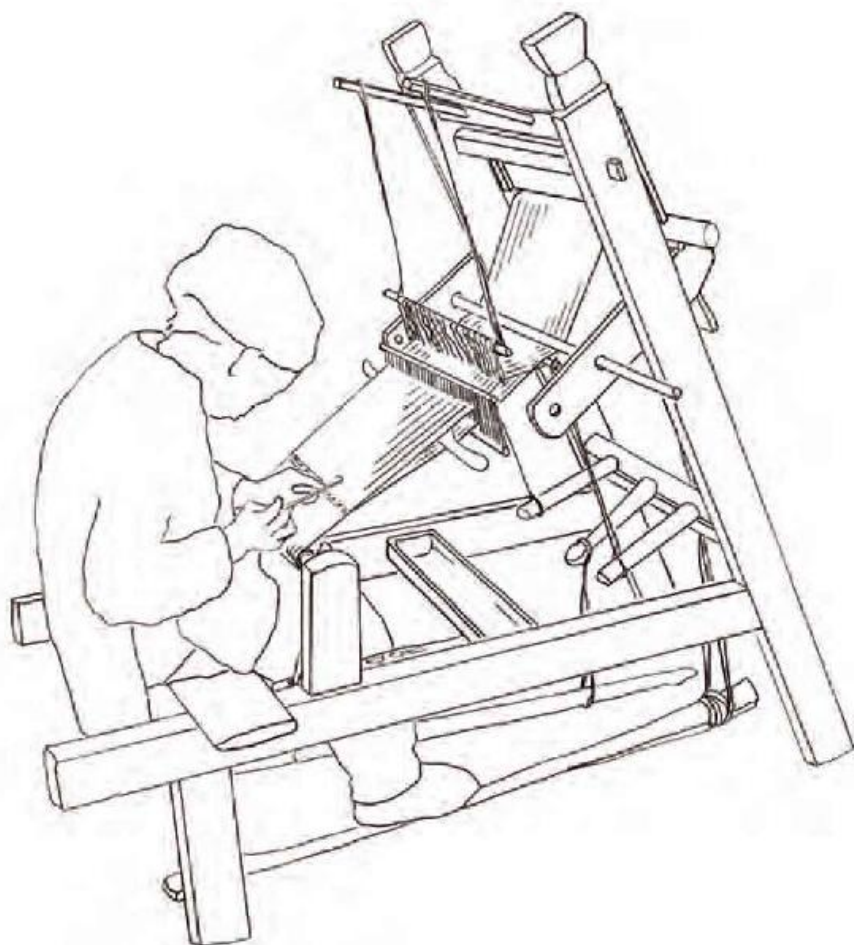
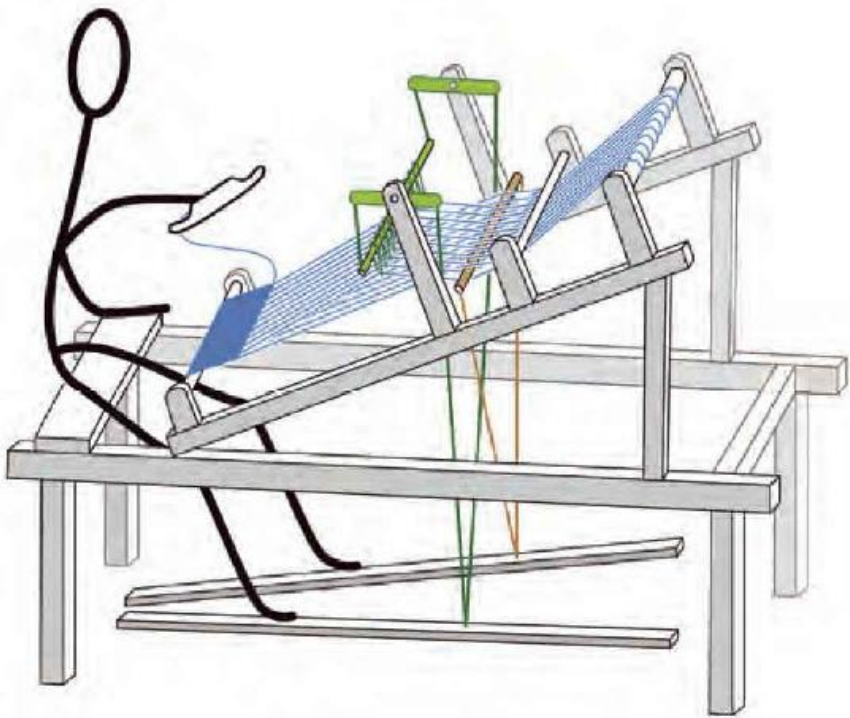


Fig. 17 The loom used by Miao weavers in Zhaoxing. See Chapter 4, Section 4.4.



Reconstruction of the warp-lifting mechanism of the Han dynasty Type 1 loom, based on a comparison of tomb engravings and the contemporary Zhaoxing loom. The Type 1 loom had two foot treadles, which were operated in a seesaw fashion. Depressing the right-hand treadle raises the heddle (shown in green in the sketch), opening the counter-shed. After weft insertion the other treadle is depressed, pulling down a shed stick (brown) and opening the natural shed for another weft insertion, and so on. Based on an analysis of the lineage of looms of this type (see Part III) it is likely that this loom was also used with a reed (not shown).

The Han dynasty Type 2 loom is essentially the same type of loom as represented by the archaeological remains from the Jing'an and Guixiya tombs, discussed in the previous section. As noted, this loom is still used today by a number of Miao and Yao groups. It is interesting that both the earliest archaeological remains and the tomb engraving depicting this loom are from southern provinces of China.

To sum up, we have evidence of (at least) two looms in use in households during the Han period, one of which (Han loom Type 2) has survived to the present day and is still in widespread use. The other (Han loom Type 1) has no precise modern equivalent, though a number of its descendants survive. Both of these looms lacked patterning systems in their original forms, and have shed-opening aids of a basic type (simple heddles and sticks maintaining openings in the warp). Looms related to both types are still used by weavers in Guizhou today.

2.15 Archaeological remains of more complex looms: recent finds in Chengdu

In 2013 a remarkable group of waterlogged tombs dating to the Western Han dynasty was unearthed in Tianhui township on the outskirts of Chengdu, Sichuan.³⁵ One of these tombs contained a model of a weaving workshop, with four miniature wooden looms, the largest of which is 50 cm high, 70 cm long and 20 cm wide (Fig. 18). These models correspond to looms that were larger and more complex than the Type 1 and Type 2 looms discussed above. All four of the model looms seem to be of the same design. They were equipped with a cage-like structure in the centre of the loom, with a dozen or more vertical slots to accommodate large heddles, the remains of which can be seen in the photographs. Each loom was equipped with a longitudinal horizontal bar at the top of the loom. The lifting mechanism of the heddles is not discernable, though it is possible that they were simply suspended from cords looped over the horizontal bar and lifted individually (probably by an assistant), rather in the manner of the pattern heddles on the present-day loom used by the Zhuang people from the Jingxi area (Chapter 5, Section 5.22). There is no sign of rocker or treadle systems in the published photographs.

Aside from the unresolved questions about lifting mechanisms, the Chengdu loom models certainly correspond to multi-heddle looms, perhaps forerunners of the Stepping Stone loom. A patterning-tower is absent, however, so they were clearly not drawlooms.

2.16 Loom technology and patterning systems: evidence from ancient textiles

Attempting to deduce precise details of loom technology from textile structure is problematic, since any given structure can be produced with many different loom types and/or patterning devices. At the most fundamental level, a skilled weaver with sufficient time and patience can reproduce any given textile interlace using the simplest of tools, such as frame and a pointed implement (hook or stick) to lift the warps. As an illustration of this, some Li weavers from Hainan make astonishingly fine brocades on a backstrap loom, equal to or exceeding in complexity any other textiles surveyed in this book, using only a weft beater and a bamboo blade to select warps (see Chapter 5, Section 5.7). Similarly, Miao weavers from the Bakai area make intricately patterned belts using a simple loom stretched between the knees (Fig. 20).³⁶



Fig. 18 Han dynasty loom models, found together with models of weavers and weaving implements, excavated in 2013 from a waterlogged tomb in Tumen, Tianhui township, Chengdu 成都市天回镇土门社区东侧. The central part of these looms consists of a cage-like structure that housed heddles similar to those of the present-day Stepping Stone loom

from the same area. Some of the collapsed heddles are visible at the base of the loom in the lower photograph. The lifting mechanism is not evident, but appears to have been simpler than the modern Stepping Stone loom. After Cultural Relics Press [2014, 82–86].

Despite these limitations, it is sometimes possible to identify the use of a pattern recording system, even if it is not possible to identify its type. The textile finds from the Chu tomb at Mashan have been mentioned already: one of the warp-patterned textiles from this tomb has a repeated fault in the design, which is evidence that a pattern-saving system of some kind was in-use. A general sense of the weaving technology employed can also be built up by surveying textile fragments.

As noted, there has also been considerable focus by textile scholars on the question of warp versus weft-patterning. From the loom technology point of view, however, essentially the same looms and pattern-saving devices can be used, with minor modifications, for both styles of weaving. This point can be appreciated most clearly by examining weaving traditions that use the two methods simultaneously. For example, Li weavers in Hainan and some Indonesian weavers produce textiles that incorporate both warp and weft-patterning on the same roll of cloth. For this purpose they use the same patterning devices (pattern rods and pattern heddles), demonstrating the flexible nature of these techniques. The main difference in practice is in the way in which the warp is set up, including yarn colour, spacing and tensioning (Fig. 19).

2.17 Pattern recording systems

The means of saving/recording patterns (temporarily or permanently) that are used by weavers are many and varied. A partial list includes the following types, all of which are in regular use today in various parts of Asia, and all of which can be applied to produce either warp or weft-patterning:

1. Embroidered pattern samplers, used as a reference and followed by eye, are used by Miao weavers in Geyi and Shidong in Guizhou (Chapter 4, Sections 4.7 and 4.9) Old fragments of textiles are used in the same manner by many Guizhou weavers, including Buyi weavers in Xingyi; Hong Yao weavers in Longji; Miao weavers in Antai, Bakai, Huishui, Panxian, Zhaoxing and Zhouxi; Tujia weavers in Longshan; Yao weavers in Jianghua.

2. Sets of pattern rods in a ‘string model’ (*lau pahudu*), followed by eye, used by Indonesian weavers on the island of Sumba for recording complex warp patterns. In these models strings represent the warps, and bamboo rods represent the wefts. The weaver follows the model by eye, in the same way that embroidered pattern

samples are used in other areas.

3. Sets of pattern rods placed in the warp temporarily, removed one by one as wefts are inserted. Such rods are used in several different ways. One method is to insert a set of rods before weft insertion commences, thereby separating the process of pattern-choosing from weft insertion. This may be done in conjunction with a string model that records the pattern. A second method is to use the rods to streamline weft insertion for symmetrical motifs. In this case, when the weaver raises a warp to insert a weft she also inserts a small wooden rod at the back of the shed (furthest from her). When the design is half-completed the weaver can then use this set of rods in reverse order to raise warps and make the other half of the design, removing them as she goes.

4. Sets of leashes (pattern heddles) attached to warps in bunches, bound with string and pulled up by hand, such as those used by some Malaysian weavers for complex weft-patterning, usually lifted by a weaver's assistant.

5. Pattern heddles consisting of rods and leashes resting loosely on the warp, such as those used by Li weavers from the Ha subgroup in Hainan, for adding small supplementary weft motifs and for warp-patterned stripes at the edges of textiles (see Chapter 5, Section 5.6).

6. Pattern heddles attached to individual treadles,³⁷ such as those used in the Sichuan Stepping Stone loom.

7. The 'Venetian Blind' heddle for recording patterns, used by Daic weavers in China, Laos and Thailand (see Chapter 5, Section 5.28).

8. The 'pig basket'/'bamboo basket' compound heddles and related systems used by Daic weavers in China (see Chapter 5, Section 5.2).

9. The complex pattern recording heddles on Chinese Drawlooms (see Chapter 7, Section 7.5).

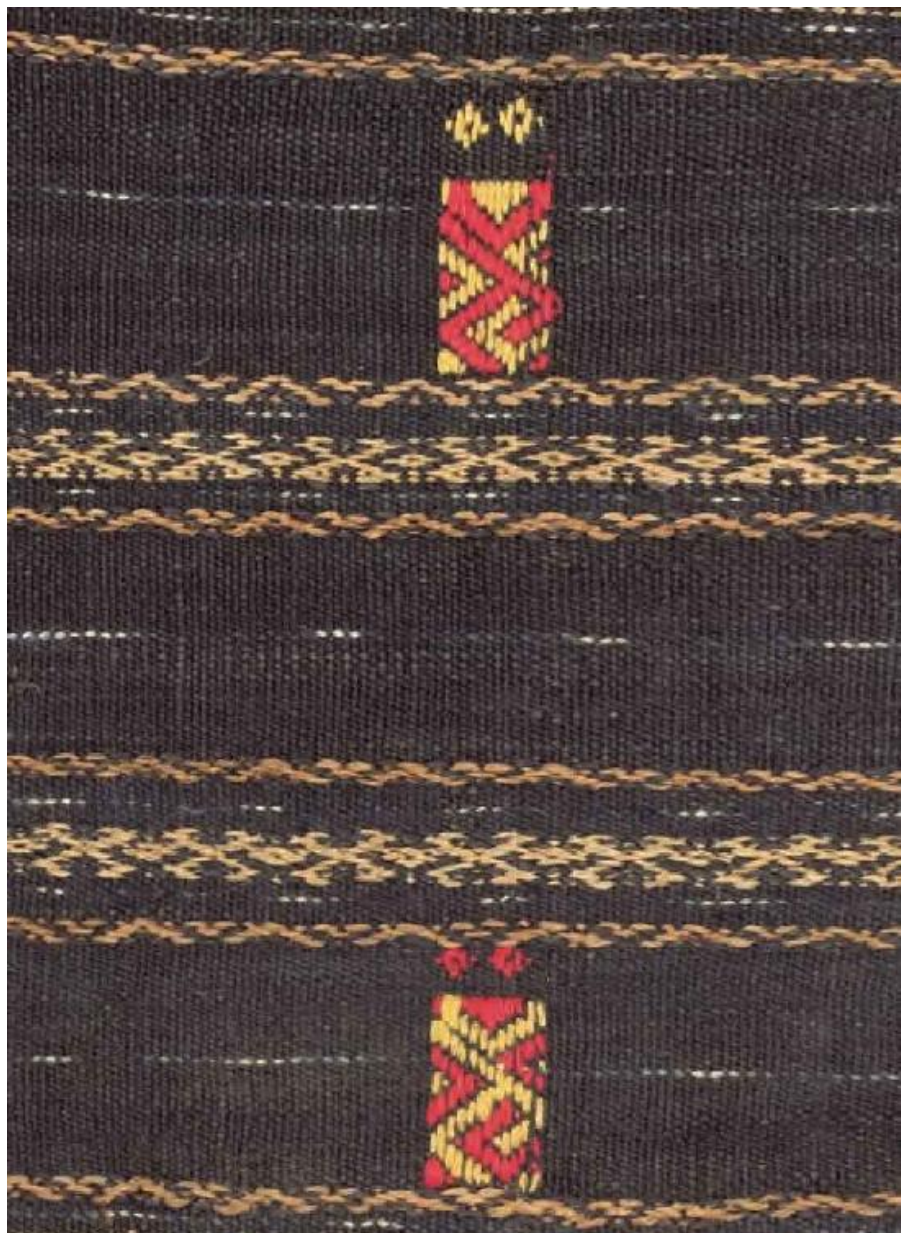


Fig. 19 Detail of a Li skirt (Qi subgroup) from Hainan. This small section of a tubeskirt incorporates warp patterning (the horizontal bands of brown warp) and sections of supplementary weft (blocks of red and yellow wefts), as well as warp ikat dashes. The warp and weft patterning were added by the weaver at the same time, while she wove the textile, using similar techniques (see Chapter 5, Section 5.5).



Fig. 20 Miao weaver from Bakai area making a patterned belt using a knee-braced loom.

These techniques and technologies are not mutually exclusive. In some cases several may be used on the same loom at the same time.

Systems for saving patterns that employ rods inserted directly into the warp are widely used by weavers across Asia. Their main limitation is that rods must be inserted by hand, then removed and re-inserted as wefts are added. For this reason they are used less often by commercial and workshop-based weavers today, who favour more flexible and permanent patterning systems based on leashes and heddles.

As mentioned, the most complex textiles in regular production during the Warring States and Han periods were warp-faced polychrome *jin* textiles. These generally have short pattern repeats of less than ten centimetres in the warp direction and utilise three or four coloured warps to create the designs. Becker and Wagner [2009] reproduced some of the Han dynasty designs on these textiles on a modern loom and concluded that a pattern system of medium complexity, such as a series of pattern heddles raised by hand, was sufficient to make these textiles. An textile with a larger pattern in the warp direction (about 53 cm) was recovered by Kozlov from a tomb in Noin-ula in Mongolia, dating to around 2000 years ago.³⁸ This isolated example may have required a more complex patterning system.

By the end of the Warring States period it is likely that weavers in

China were already familiar with a variety of patterning systems, though in most cases it is not possible to determine precisely which particular system was in use by considering textile fragments alone.³⁹

2.18 Textual evidence for Han period looms: the ‘Rhapsody on Women Weavers’

The most famous (and most discussed) text from this period concerning weaving is Wang Yi’s book,⁴⁰ the title of which is conventionally translated as *Rhapsody on Women Weavers*. This dates from the late Han period and it includes a poetic description of a busy weaving workshop Zhao Feng [2005] interprets this passage as a description of a loom with a ‘bamboo-basket’ patterning heddle, similar to those used by Zhuang weavers today. Kuhn on the other hand believes that this is a description of a tower drawloom.⁴¹ The language of the *Rhapsody* is poetic and allegorical: based on our reading of the text (Appendix 1) we do not believe that it is possible to deduce exactly what kind of loom it refers to, other than that it is relatively complex. Several other texts describing workshop weaving, from the Han through Tang dynasties exist, but all were evidently written by non-weavers and all suffer from similar issues of interpretation.

2.19 Multi-heddle looms

Most authors who have written on the subject of early looms believe that systems using multiple heddles, capable of producing short repetitive patterns of the type seen in many textiles of the period, existed in the Han dynasty. One line of evidence for this is textual. The work that is cited most often is the *Records of the Three Kingdoms*,⁴² written in the third century and describing the Han period. The text states that if a damask loom has 50 heddles then it will also have 50 treadles. This seems to describe a loom with shafts (heddles linked to treadles). The use of multiple heddles linked to treadles is certainly a practical way to make damask fabrics of the type that were common from the Han to the Tang dynasty, mostly warp-faced fabrics with twill patterning on a tabby ground. As already noted, modern experiments have demonstrated that this type of loom is adequate for this task. Shafts take up a lot of room on a loom however: 50 is probably near to the maximum that can be accommodated by this system.

One type of multiple shaft patterning loom that was in use until recent times is the famous Stepping Stone loom⁴³ of Shuangliu county,⁴⁴ Sichuan, (Fig. 21). It has two types of heddles, one for raising the warp, one for depressing it, both connected to treadles operated by

the weaver. The ‘pull-up’ heddles are raised by cords attached to rockers that sit in a row on a longitudinal beam above the loom. Chinese authors call this a ‘crow’⁴⁵ system, presumably because the rockers resemble a row of birds on a branch.

The other type of heddle pulls the warp downwards, and is connected to a bamboo bow above the loom that acts like a spring and pulls the heddle back up after the weft has been inserted. The shafts are similar (in fact, identical) to the ground-weave shafts on a Chinese Drawloom, so the Stepping Stone loom looks like a simpler relative of this complex type.

This kind of loom can be used to weave a bolt of cloth with small repeats, but its use in recent times seems to have been mainly for weaving narrow bands with warp-patterning. It is an efficient and fast loom, but its main drawback is its inflexibility. A new design requires a new set of shafts, which is time-consuming to install.

To sum up, there is evidence for a variety of different looms in use by the Han period, including small domestic looms and more complex looms belonging to professional workshops. Pattern-recording systems were certainly in use by this period, though not universally. There is no firm evidence for the use of the Drawloom during the Han dynasty, and most of the textile structures made during this period do not require it.

2.20 Looms from the Han dynasty to the present

Historical and physical remains of looms and weaving become steadily more plentiful from Han times onwards. As in earlier periods, however, most of the evidence relates to the production of luxury silk textiles for the Chinese elite: there is little or no evidence relating to domestic textile production. Nor is there much evidence of textile production amongst non-Han peoples, a topic that does not figure in official imperial histories, except for passing references to textiles produced as official tribute (Appendix 2).

In broad terms there are three major topics that have attracted the attention of textile scholars concerned with textiles in the post-Han period:

1. The development of the Drawloom
2. The gradual switch from warp-patterned textiles to weft-patterned textiles, which occurs from the Han to the Tang
3. The development of official tribute workshops producing luxury silks, and their relationship to the imperial court.

For most authors (including Zhao Feng, Kuhn and his co-authors in *Chinese Silks*) these topics are linked, the Drawloom being viewed as

the culminating development that allows the production of complex weft-faced textiles, reproducibly and in quantity, for use by the elite.

2.21 The development of the Chinese Drawloom

In Western writings on weaving technology one often encounters the expression ‘the drawloom’. In fact, this is not one loom but several. Broadly speaking, we can distinguish three types: the Persian/Indian Drawloom, the European Drawloom, and the Chinese Drawloom, all of which have similarities as well as important differences. Within China, there are at least two distinct but related Drawlooms with different patterning arrangements. What constitutes a drawloom? For our purposes we will use the following definition:

A drawloom is a loom with a flexible patterning device that allows warp yarns to be lifted independently (or in groups) in any combination.

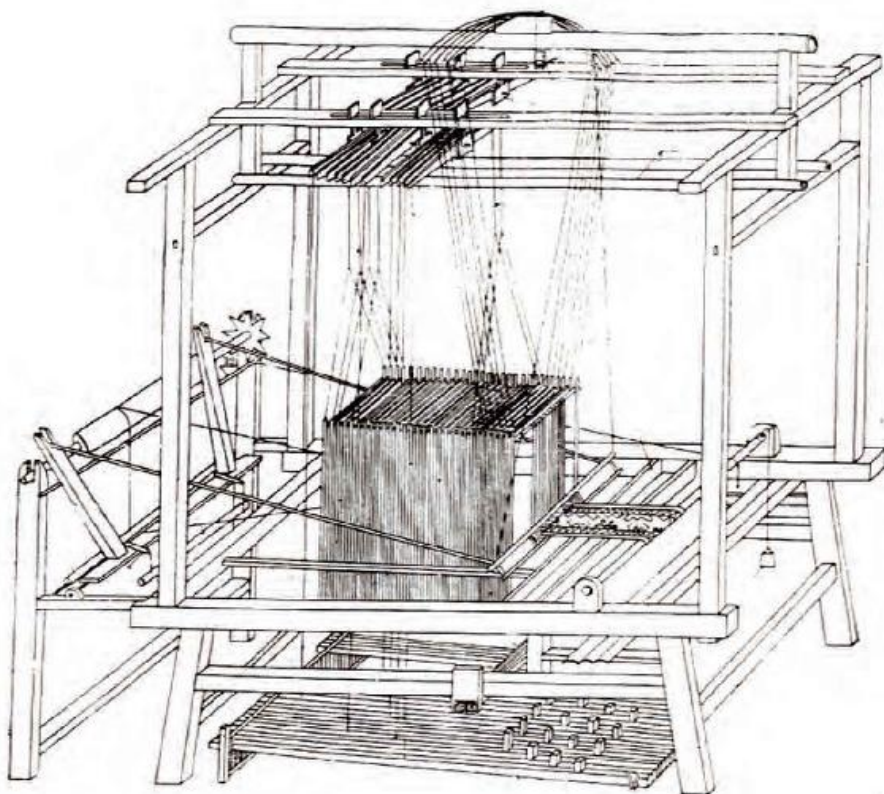


Fig. 21 Woodblock print of a Stepping Stone loom (source unknown). This type of loom was used until recently in Sichuan province for making narrow warp-patterned bands and for making wider silk textiles with small repeated designs. The loom includes two sets of heddles, which pull the warp upwards and downwards respectively, operated via foot treadles. The treadles are equipped with raised bamboo knobs (‘Stepping Stones’), from

which the loom gets its name.

In the case of the Chinese Drawloom it also includes a means of recording the sequences of lifts, in other words, a system for recording the patterns to be woven. This system allows repeating patterns to be woven, if desired, with repeats in both the warp and weft directions.

The key words in the definition are 'flexible' and 'independent'. Patterns can also be woven by means of a series of shafts on multi-treadle looms, but this system is not flexible. Once mounted on the loom, shafts can only raise the same sets of warps repeatedly and can therefore only produce a limited range of patterns. The Drawloom has no such limitations and can raise any number of warps in any sequence. In most cases the warp lifting is done by a weaver's assistant. The price that is paid for this flexibility is a complex mechanism and the high level of skill and involvement that is required of both the weaver and her assistant, with frequent pauses to repair broken or tangled cords. Drawloom textiles are correspondingly expensive to make and the system is only used for the most luxurious textiles.

As noted above, Kuhn and some other authors have argued that the Drawloom was already present in China in the Han period. We can find no firm evidence for this however.

Evidence for the Drawloom during the Tang period is indirect but stronger, consisting of the production of more complex weft-faced textiles, and textual references to looms operated by two persons.⁴⁶ There is better evidence for the Chinese Drawloom by the Song dynasty, in the form of illustrations in ink-painted hand scrolls, notably *Pictures of Sericulture and Weaving*⁴⁷ dating to the twelfth century, and *Pictures of Farming and Weaving*⁴⁸ from approximately the same period (Figs. 22 and 23). Both sets of illustrations show a loom of a type that is referred to as the 'Lesser Drawloom'.⁴⁹ Its essential feature is a set of shafts (heddles linked to treadles) operated by the weaver and used for producing the ground weave and twill/satin effects, combined with a pattern tower for more complex warp lifts. In the pattern tower, sets of leashes connected to individual warps extend upwards into the tower, where the seated assistant raises them according to a sequence that is recorded on a pattern harness (a web consisting of strings representing warps with embedded strings that record sets of warp lifts). Given the (apparently) highly developed state of this loom in the Song dynasty, some prior history of development during the Tang and Five Dynasties periods seems likely.

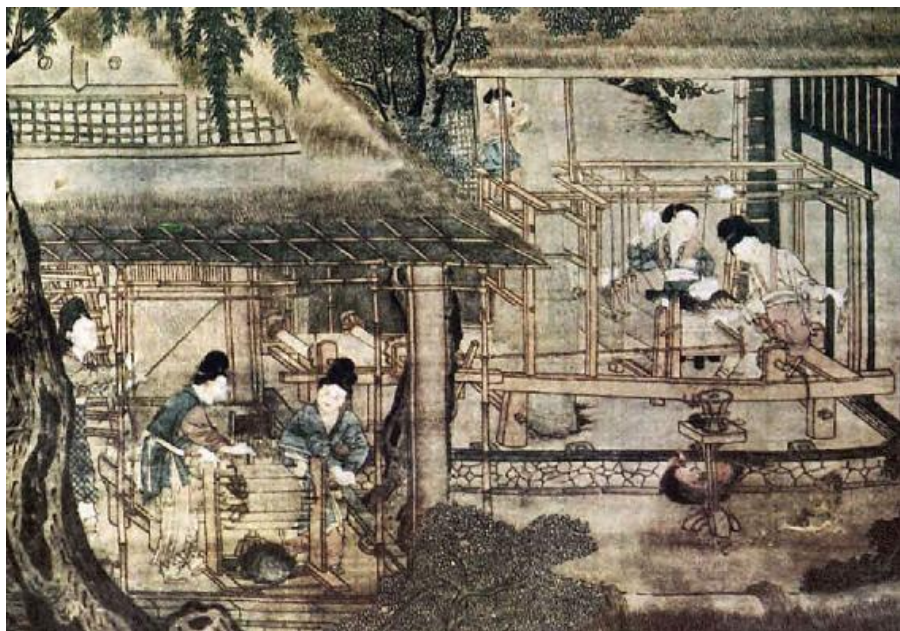


Fig. 22 Detail from a Kangxi period (late seventeenth century) edition of the Song dynasty (twelfth century) album *Farming and Weaving* 耕织图, depicting the Lesser Drawloom (at the right).

Aside from the Drawloom, simpler looms were also in use for making plainweaves (tabbies) and twills, and for specialised applications. Zhao Feng [2005] mentions two different kinds: the two-shaft loom with independent shafts⁵⁰ and the two-shaft loom with linked bidirectional heddles.⁵¹ The first of these is used for making *kesi* (silk tapestry) (Fig. 24). It has a fixed warp and breast beam, with two heddles and treadles, both of which are pulled upwards by rockers of the ‘crow’ type. This technology is a simpler version of that used in the Stepping Stone loom and the ground-weave heddles of the Chinese Drawloom. Its drawback is that the sheds that can be opened by a pair of heddles of this type are rather narrow.

The second type, the two-shaft loom with linked bidirectional heddles, is of singular importance to the history of weaving. It has a pair of heddles that are joined together by a rocker and linked to foot treadles (Fig. 25). The heddles are of the symmetrical, bidirectional type, with the warp passing through an ‘eye’ in the centre, so that they can pull in two directions (up and down). This means that as one heddle is raised the other can be pulled downwards at the same time via the linkage between them, opening a shed wider than is possible with other designs. Zhao Feng states that this loom first appeared in China during the Yuan or early Ming period (thirteenth–fourteenth century). Today, this basic mechanism is probably the most common in looms

used worldwide, and there are several different versions of it in use in Asia.

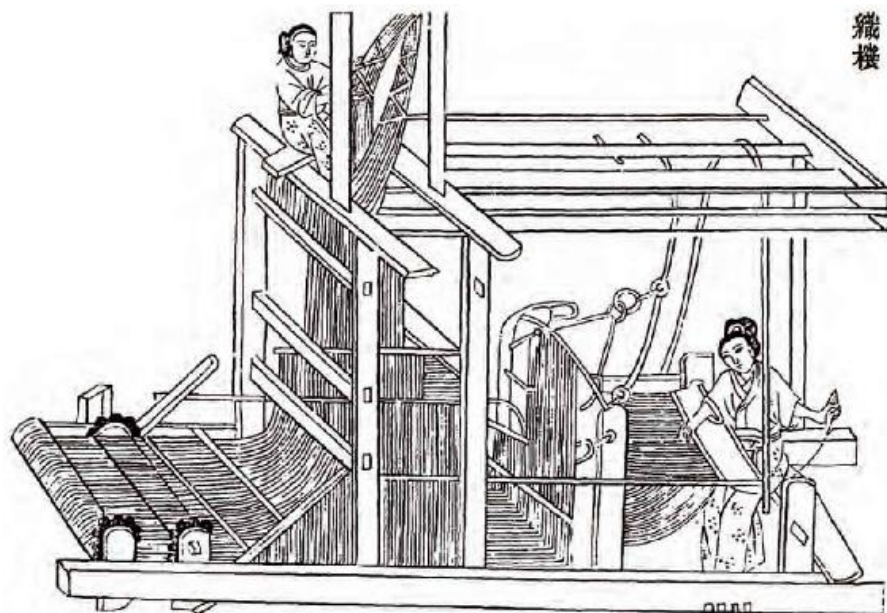


Fig. 23 The Lesser Drawloom. Yuan dynasty (fourteenth century) woodblock print showing the pattern tower in the centre, containing a web of strings that records the lifting sequence of warps corresponding to the pattern to be woven.

2.22 Workshop organisation

In parallel to a gradual increase in the complexity of fabrics and looms, the level of organization of labour employed for weaving the finest silks also evolved. A seal from Hunan province dating from the Warring States period (BCE 475–221) with the inscription ‘Central Weaving Workshop’^{52:53} is evidence of organized, officially sponsored weaving. The system of workshops serving the elite and imperial court that began during this period persisted until the Qing dynasty. Domestic textile weaving clearly continued alongside this, but there is less evidence of what its products might have looked like. The archaeological remains that do exist indicate that domestically produced fabrics made use of bast fibres such as hemp, ramie and kudzu vine, as well as silk.

Workshops weaving for court use experienced economic pressures of a type that were unknown to domestic weavers. A letter from the Suzhou, Jiangning (Nanjing) and Hangzhou weaving workshops to the Tongzhi Emperor, dated 1871, gives a flavour of this (Fig. 26):

Your servants are grateful for your extreme benevolence and know about

the very difficult times our country is going through and the necessity to be parsimonious. However it is indeed extremely difficult to reduce the actual market price of goods and labour because the standard price (paid by the court) was fixed more than one hundred years ago. Then several decades ago the market price rose and the [imperial] budget was adapted accordingly. It was fine for some time as prices remained stable. The imperial workshops were receiving an appropriate income from the salt tax and costume duty tax, but this amount is now far from sufficient to cover the purchase of silk yarns.⁵⁴

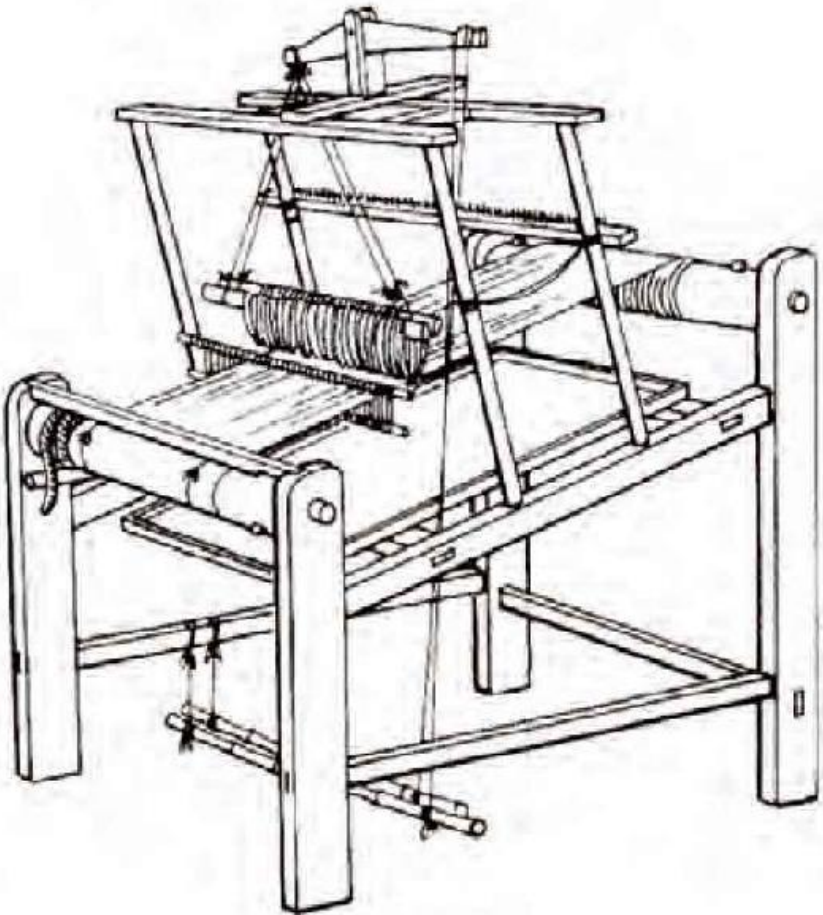


Fig. 24 Kesi (kosu) loom for weaving silk tapestry. After Zhao Feng [2005, 21].

Dagmar Schäfer [2011] has documented the history of silk making in imperial workshops, noting the stresses and conflicts between the capital and the provincial centres of silk manufacture. Occasionally the system of silk weaving at state-run workshops broke down and officials were obliged to buy silk from private commercial workshops,

causing ‘prices to shoot right up to the heavens’. Given such pressures, it is reasonable to expect that workshops would favour the most efficient looms and weaving practices available at the time, including looms with pattern-saving devices.

2.23 Loom development: a summary

This chapter has reviewed what is known about the development of looms, from the Neolithic period around 7000 years ago to the Qing dynasty. During this period weaving technology in China and the Asian mainland developed from the foot-braced backstrap loom into a range of looms of varying size and complexity, in locations ranging from domestic settings to large-scale commercial workshops.

Remarkably, many of the loom types that were developed in the past are still in use today, even the simplest backstrap kinds. Loom development can therefore be understood not as a linear process, but as a complex branching development that proceeds on many fronts simultaneously. As author Eric Broudy remarked, it was not unusual in China for earlier, simpler weaving techniques to survive alongside more highly developed forms.⁵⁵ Archaic types such as the Han Type 2 loom appear to have been preserved essentially unchanged for millennia, while development and modification continued at a faster pace on other types, particularly those with commercial significance.

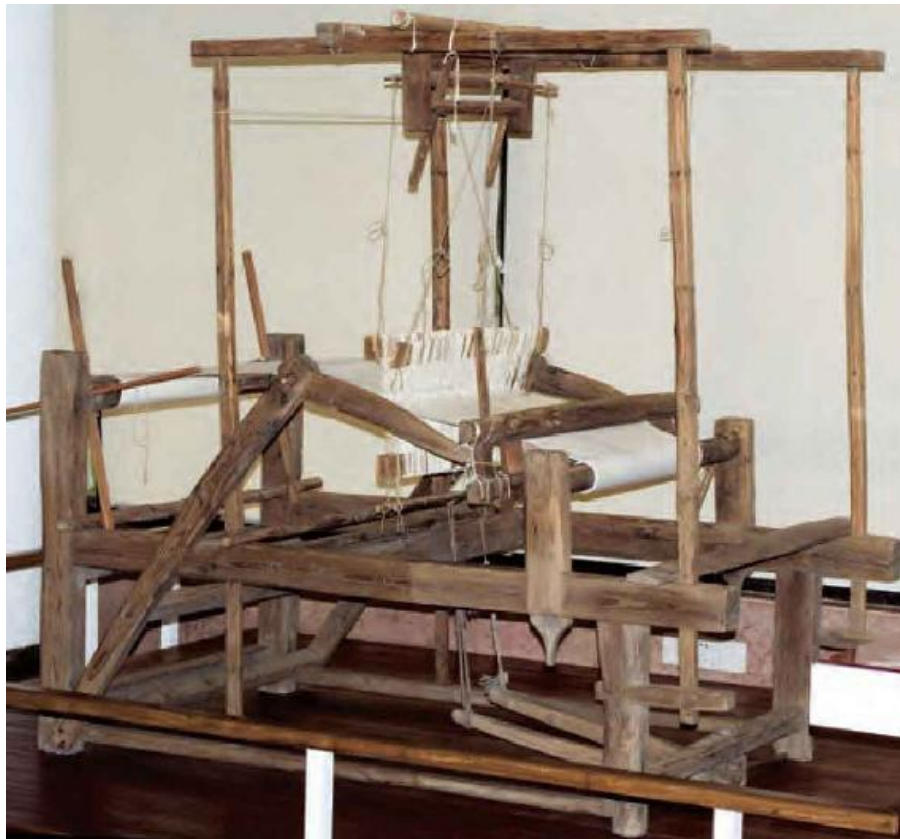


Fig. 25 Chinese loom equipped with a pair of bidirectional heddles linked to foot treadles. China National Silk Museum, Hangzhou.

Further developments such as the fly-shuttle, machine-powered looms and Jacquard patterning devices were introduced into commercial weaving workshops during the late nineteenth and twentieth century, but these recent Western imports fall outside the scope of our study.



Fig. 26 A signed letter from the supervisors of the Suzhou, Jiangning (Nanjing) and Hangzhou weaving workshops, addressed to the Tongzhi Emperor, in response to an order for bolts of silk for a wedding celebration, dated 1871. Chris Hall collection.

1 男耕女织.

2 Quoted in the *Hanshu Shihuo zhi* 汉书 食货志.

3 一夫不耕或受之饥，一女不织或受之寒.

4 养女不织花，不如不养她 [Tian Ming 2008].

5 Mentioned in the ancient texts *Zuochuan* 左传 and *Guoyu Jinyu* 国语-晋语 reviewed by Wang Xu [2001, 46]. With reference to the weavers themselves, Sheng [1995, 58] notes: 'The prohibition against freeing these women artisans and the acceptance of them as war booty strongly suggest that they carried with them in their hands and heads ... precious technical knowledge'.

6 *Bu* was originally a hoe-shaped currency used in the Qi 齐 kingdom during the Warring States period [Ricci 2010]. The word *liang* 两 (tael or ounce), the main silver weight used for business transactions until the early twentieth century, was originally another measure for rolls of fabric, equal to forty *chi* 尺 (9.3 metres) in the Han dynasty. Vainker [2012, 55] notes: ‘In the Wei and Jin dynasties, prices for wood, bricks, grains and other commodities began to be quoted in silk bolts and it is even recorded that in the Northern Wei, official positions could be bought in silk, at two thousand bolts for the governorship of a large prefecture...’.

7 The value of units of measure, as well as the multiples employed, tended to change over time. The unit 尺 *chi* (one ‘foot’ = 10 寸 *cun* or 0.1 丈 *zhang*) grew from about 0.23 metres during the Han dynasty to about 0.33 metres during the Qing. Similarly, *zhang* (=10 *chi*) grew from about 2.3 metres in the Han to 3.2 metres in the Qing. The unit 匹 *pi*, the standard length of a roll of fabric, was defined as 4 *zhang* during the Han, but had been revised to 3 *zhang* by the late Qing.

8 *Jiu Tang Shu* 旧唐书.

9 It is unclear to what extent an apparent prohibition against the use of blue by commoners was actually enforced, since indigo is the most widely available dyestuff throughout Asia and is eminently practical for work clothes.

10 See Du Wei [2002] and Hostetler [2001, 138 and 144]. Herman [2006, 144] also writes that under the Ming, *tusi* widows could be given the titles of ‘Lady Obedient to Virtue’ *shundefuren* 顺德夫人 or ‘Lady Perceptive of Virtue’ *mingdefuren* 明德夫人.

11 Yao men living close by the Hunan provincial capital of Changsha were described during the Sui dynasty (589–618 CE) as wearing ‘white trousers and shirts’ [Lemoine 1991, 448]. This adoption of Han dress codes by a non-Han group was probably an exception rather than the rule, relating to Yao who lived in Han populated areas.

12 草鞋山.

13 Huang Nengfu [2002, 13, Fig. 2–10 (3)] shows a structural diagram of a textile impression (pseudomorph) found on a bronze sword handle dating from the Western Zhou period (BCE 1046–771) found in Shanxi province, which he interprets as a supplementary weft compound tabby structure forming a lozenge pattern. Since no selvage is visible in his illustration it is unclear how he arrived at this conclusion.

14 Wang Xu [2001, 147].

15 Reviewed by Riboud [1994] and Peng Hao [1985 and 2012].

16 *taodai* 绦带.

17 抛梭.

18 穿绕.

19 Zhao Feng [2005, 10].

20 Peng Hao [1996].

21 花本. The various kinds of *huaben* are explained in detail below, in sections relating to Daic looms (Chapter 5, Section 5.2) and the Chinese Drawloom (Chapter 7, Section 7.5).

22 Chen Weiji [1992, 32–33] reconstructs these parts as a simple back-tensioned loom. Peng Hao [2012, 74] presents a reconstruction as a frame loom, quoting work by Song Zhaolin and Mou Yonghang.

23 足蹬腰机.

24 靖安.

25 贵溪崖.

- 26 Described by Zhao Feng [2012].
- 27 Feng Guangyu [2006].
- 28 Zhao Feng [2012]. A component with forked ends is variously interpreted as a cloth beam and as a weft shuttle (as in the top illustration in Fig. 12). In our opinion it is a cloth beam.
- 29 Zhao Feng identifies two types of loom from these engravings that he calls the oblique treadle loom 踏板斜织机 (our Han Loom Type 1), and the horizontal treadle loom 踏板卧机 (our Han Loom Type 2). He also mentions a loom he calls the double axle loom 双轴织机, which is a hypothetical ancestral form of a loom with a fixed warp beam and cloth beam [2005, 19–20].
- 30 Zhao Feng [2005, 20].
- 31 Huang [2002, 40], Wu Min [1992, 159].
- 32 Another modern loom with a similar shed opening mechanism is a Japanese loom described by Yoshimoto [2013, L-143], which has the same treadles, but different frame geometry.
- 33 Hsiao and his co-workers [Hsiao 2011a] present an analysis of the Han dynasty Oblique treadle/Type 1 loom, using engineering principles to list the possible linkages in a systematic way. This is a promising approach, but their work is marred by basic mistakes in the positioning and interconnection of heddles, shed stick and other components. Of the five basic loom designs in their paper, three appear to be inoperable because the single heddle has been incorrectly attached to the upper warp rather than the lower warp. Of the remaining two designs, one is untypical but probably functional, the last (with two heddles) is inoperable because a wide shed stick has mistakenly been placed next to the heddles. Their paper on the Drawloom [Hsiao 2011b] suffers from similar errors, notably the heddles are attached incorrectly and a wide plank-like shed stick has been inserted between the pattern heddles and the ground-weave heddles, a feature that is absent in the Chinese Drawloom.
- 34 Zhao Feng describes the loom as a single heddle, single treadle loom with back tension. He also provides a reconstruction of the loom that is based, he writes, on the present day loom used by Tujia weavers in Longshan, and he notes that a similar loom is described in the Yuan dynasty book *Zirenzhizhi* 梓人遗制 (*The Carpenter's Heritage*) by Xue Jingshi 薛景石. The illustration that Zhao Feng provides, entitled 'Xiangxi horizontal treadle loom', does not correspond to the traditional Tujia brocade loom found in Xiangxi. It might refer to another local loom that we have not seen.
- 35 Cultural Relics Press [2014, 82–86].
- 36 Yoshimoto [2013 L-9] shows a similar loom used by the Tujia people of Western Hunan.
- 37 A heddle linked to (and raised by) a treadle is normally called a 'shaft' in literature relating to looms and weaving. Some writers use the term 'shaft' to mean a heddle of any kind, whether attached to a treadle or not. We reserve this term for heddles where a lifting mechanism is present.
- 38 Li Wenying [2012].
- 39 Evidence for the use of pattern rods in ancient Chinese looms comes from the *Xijing Zaji* 西京杂记 '*Miscellaneous Records of the Western Capital*' written in the third century CE. This text tells the story of Chen Baoguang's wife, who lived in Julu (now in Hebei) during the reign of Emperor Han Xuandi (BCE 73–49). She is described as weaving brocades on a loom with 120 'rods'. The original text uses the character 钹

nie which is usually translated as ‘needles’. Zhao Feng interprets this as pattern rods, placed in the weft direction. Some recently published versions of this text substitute the character 蹀 *nie* which means ‘treadle’, which has led to an interpretation of this text as describing a loom with ‘120 treadles’ (an impractical number). We agree with Zhao Feng’s view that what is being described here is a loom with a large number of pattern rods, not treadles. The *Records* goes on to state that Cheng Baoguang’s wife was able to produce one *pi* or bolt of cloth (匹, about 9.2 metres at the time) within sixty days, which she was able to sell for ‘10,000 coins’.

40 机妇赋 by 王逸.

41 Kuhn [1995 and 2012].

42 三国志.

43 丁桥织机.

44 双流县.

45 鸦儿.

46 Zhao Feng [2012a, 209].

47 蚕织图.

48 耕织图.

49 小花楼织机.

50 单动式双综双蹀机.

51 互动式双综双蹀机.

52 Li Wenying [2012]. Vainker [2012, 40] also notes that ‘An actual seal from another Warring States tomb in Changsha bears the characters *zhong zhi bao shu yin* (Seal of the Precious Needle Central Weaving [workshop]), which gives a strong indication of officially supervised textile production.’

53 Vainker [2012, 55]: ‘In Shu, the *jinguan* (brocade office) supervised production from its workshops in the Western suburbs of Chengdu’. She also mentions the establishment of government sponsored ‘craft households’ in Shanxi province in the late fourth century, adding that ‘Private production was limited by the insistence that silk be made in official workshops, and it was forbidden for individuals to have their own looms.’ However: ‘No such control is recorded for the south, where quantities apparently traded suggest that the craftsmen enjoyed some freedom.’

54 Unpublished letter, Chris Hall collection, see Fig. 26.

55 Broudy [1979, 115].

Chapter 3: introduction to the looms and brocades of Southwest China

3.1 The importance of loom technique

More than 20 years spent in the field observing traditional textile production amongst the ethnic groups of Southwest China has convinced us that brocade weaving, more than any other textile technique, occupied a position at the heart of local weaving traditions. Until the twenty-first century, the loom retained its position as a permanent and central feature of most rural households.

Embroidery is basically portable, and can be done anywhere, creating new motifs as fashion dictates. Stitches can easily be undone in case of error. Applying wax to a cloth for resist-dye decoration requires greater skill, but wax can also be removed before dyeing if a mistake has occurred. Loom weaving, in contrast, requires a disciplined approach. The loom remains in the home and its use is governed by rules and taboos. It takes two or three days of exacting work for two to four women of the family to set up the warps, following several months of work preparing the yarn. As a result, the young weaving apprentice is not at liberty to experiment.

For young women growing up in weaving communities in Southwest China, acceptance as respected members of the community depended, until relatively recently, on their dedication to learning and obeying the rules of weaving, both technical and aesthetic. Indeed, a woman's future marriageability would be judged and determined, in part, on the quality and precision of her brocade work.¹ Until the late 1980s, it was not uncommon to see young unmarried women carrying piles of neatly folded brocaded wedding bedcovers on their backs, to be displayed and admired during festivals, in which courtship opportunities and rituals also played an important role.

3.2 The pre-nineteenth century era: textiles as taxation

A humid climate, rudimentary tomb construction and the fact that many groups buried their dead in simple white hemp garments, have

conspired to destroy most of the textile evidence which might otherwise have provided clues about early ‘ethnic’ brocades. With the exception of a Miao costume believed to be from the Song dynasty,² the earliest examples of textiles collected in Southwest China are household heirlooms that date from the late eighteenth or early nineteenth century. The only other sources of information available to us are Chinese texts recording tribute paid to the court, and the *baimiaotu*. Even though these are often imprecise about the exact names of the ethnic groups and the nature of the textiles concerned, they give us an idea of geographic provenance and quantity.

As discussed in Chapter 2, woven cloth constituted one of the main sources of revenue for the imperial government; registers of the Tang government in the middle of the eighth century indicate that more than seven million bolts of silk were collected in taxes (‘tribute’) annually. This silk seems to have served as a form of currency to pay wages and to exchange for goods, as well as to make clothing. Most minority groups, even those living in areas only nominally under imperial control, were paying tribute indirectly through the local *tusi*, increasingly so following the implementation of the *gaitu guiliu* reform during the Ming and Qing dynasties.

Official records show that textiles produced by minority groups in Southwest China have been included in official ‘tribute’ for more than four thousand years. For example, Tian Ming [2008] cites the *Huayang guozhi-bazhi*³ (written 348–354 CE and devoted to the Southwest region) which mentions that the legendary leader Xiayu or Yu the Great, praised the quality of silks (*bo* 帛) produced and given as tributes by the Shu and Ba people, implying that the Ba were already weaving silk as well as hemp. Records of tribute textiles are listed in Appendix 2.

3.3 Conservative transmission of weaving culture

A brocade weaver traditionally served a very strict apprenticeship, without a moment of inattention allowed or a single stray weft tolerated. The result of this rigidly conservative transmission is that the novice weaver learned to weave brocade precisely as her mother and grandmother did, with few or no changes in technique or style (Fig. 1). This conservatism, together with the complexity of the techniques, leads us to expect that brocade techniques have been transmitted from generation to generation over long periods of time and with a high degree of fidelity.

Examples of the consequences of this conservative transmission abound. The wide disparities in the efficiency of the various looms examined in this book are an interesting case: within a radius of a few

hundred kilometres or less, the speed of brocade weaving can vary by a factor of almost 100. Accomplished Miao weavers in Zhouxi in Eastern Guizhou weave about one centimetre per day, while Maonan women in Southern Guizhou can produce up to 80 centimetres daily. Over hundreds of years however, these weavers did not consider enhancing the efficiency of their looms by learning from their neighbours; quite the opposite in fact. A further example concerns Miao weavers in Huishui who maintain a weaving technique that involves raising the heddle bar by hand, while most of the nearby Miao groups in Guizhou use a more convenient treadle-operated system. There is no doubt that the Huishui weavers are well aware that their neighbours' looms look different and weave brocade faster, but they display scant interest in copying them.

We can infer that in the mind of the weaver at the village level, looms and brocade techniques are not regarded as matters for improvement or progress, nor is the primary purpose the production of utilitarian textiles (though this plays a part). On the contrary, what matters is fidelity to the canons of ancient culture, and the maintenance of distinctions between ethnic groups. At the regional festivals that used to be the main opportunity for people from different villages to meet, the wearing of distinctive costumes played a socially important role in defining and differentiating groups, as well as in displaying the talents of individual weavers.

To sum up, looms, weaving processes and the textiles produced are viewed and transmitted as a seamless whole, and each variant is the exclusive property of one ethnic sub-group, which generally consists of a cluster of villages speaking the same dialect and sharing the same customs, related by intermarriage.

As noted, this is in clear contrast to the commercial workshops producing textiles for the imperial court, where, in the long term at least, efficiency of production seems to have played a significant role,



Fig. 1 (Above) a Miao weaver from Geyi, checking a pattern warp count from an embroidered sampler and selecting yarns, prior to teaching the pattern to her granddaughter.

(Below) a young Miao woman from Zhouxi learning the art of supplementary weft-

patterning, involving picking out warps individually by hand.

3.4 Overview of looms and patterning techniques

Southwest China presents a remarkable variety of looms and weaving techniques, as we describe in Part II. The looms range from simple body-tensioned looms without frames or reeds (Li weavers in Hainan and some groups on the mainland), to body-tensioned looms with complex frames and reeds (the most common type, used by 15 of the weaving groups surveyed), as well as frame looms with fixed cloth beams and reeds. Patterning techniques run the gamut from patterns picked entirely by hand and eye, to complex devices for recording designs such as those found amongst Maonan weavers and related Daic groups.

The techniques used by the various groups to make the patterns can be categorised as follows:

1. At six of the weaving locations studied the weavers make patterns entirely ‘by hand’, selecting warps to be raised for patterning using a pickup stick or hook, with no patterning aids installed on the loom (Buyi weavers in Xingyi; Miao weavers in Antai, Panxian, Zhaoxing and Zhouxi; Yao weavers in Jianghua).
2. At six locations weavers use variants of the Tubes-and-Layers system (Miao weavers in Bakai, Geyi, Huishui and Shidong; Tujia weavers in Longshan; Yao weavers in Longji). In this system a subset of warps to be used for patterning are separated by bamboo tubes inserted in the warp. The weaver must still make the final selection of warps by hand.
3. In six locations weavers use complex pattern-recording systems (*huaben*). These are Buyi weavers in Libo; Dai weavers in Yingjiang, Maonan weavers, Zhuang weavers in Binyang and Jingxi; Dong weavers in Tongdao. Of these, all except the Dong use the *huaben* exclusively to create their designs. Dong weavers at Tongdao sometimes create patterns by hand, as well as using a version of the *huaben*.

3.5 Language, ethnicity and brocading technique

One of the significant findings of this survey is that clear relationships exist between the distribution of weaving techniques and the languages spoken by the weavers. In other words, weaving technique is related to ethnicity, for which language is normally regarded as a proxy.

Firstly, complex pattern recording systems with cyclic *huaben* made of bamboo rods controlling heddle loops, are only used by Daic groups:

no other groups in the region show any evidence of using this technology. The Han Chinese Drawloom however includes several elements that have been derived from Daic pattern recording systems, a topic that will be discussed in Part III.

Secondly, the Tubes-and-Layers pattern-helping system is predominantly found on brocade looms belonging to weavers of the Miao-Yao linguistic group. Four out of the eight Miao groups and one out of two Yao groups surveyed use it. The one exception is the Tujia, who have been living in close proximity to the Qociong (Gexiong) Miao and may have learned the technique from them.

The persistence of associations between weaving and language, as well as the sheer diversity of technique, is a further manifestation of conservative transmission over a long period. If Asian weavers had learned their skills from a common source in relatively recent times we would expect to see a greater uniformity of technique and fewer associations between language and ethnicity.

3.6 Textiles in Southwest China today: rapid change and the loss of traditions

Asian weaving traditions today face a step-change in the structure of society that is as significant as the Neolithic revolution that gave rise to them in the first place. The majority of traditions will not survive. As mentioned in the Introduction, the rapid disappearance of complex techniques, brocade weaving in particular, provided us with a compelling reason to carry out this study, as the transmission from one generation to the next has greatly diminished in recent decades, and in some cases it has halted. As older weavers die without teaching the younger generations, looms are sometimes burned (to accompany the soul of the deceased weaver into the afterlife) or left to decay in attics.

The social changes in China that have taken place over the past three decades have been particularly dramatic, but some of these processes had already begun a century ago, as shown by the cases of the Zhuang in Wenshan and the Dong in Bazhai where brocade looms had already disappeared by the early part of the twentieth century.

3.7 Relation between preservation/disappearance and 'remoteness'

One unexpected finding from these surveys is that there is no apparent relation between the degree of development, distance from urban centres, and affluence of a given area and the survival (or loss) of ancient weaving looms and techniques.

In Panxian for instance, one of the poorest and most remote districts visited, brocade looms are still plentiful, while in Wenshan and Bazhai, which are also quite isolated and impoverished, no trace of brocading looms could be found. On the other hand, in Shidong, a prosperous place regularly visited by tourists, the making of traditional brocade is thriving. Contrary to our expectations, most of the characteristic local aprons that are still being woven in Shidong are not made for tourists, but for the local Miao themselves, who have maintained the tradition of wearing traditional dress for weddings. In other areas, such as Xingyi, poorer families and villages weave brocade bedcovers for wealthier brides living in more prosperous areas.

Amongst Tujia weavers in Hunan, and the Zhuang in Guangxi (Binyang, Jingxi, Napo) traditional weaving has survived for different reasons. Weavers in these places have been encouraged by local government officials to create new designs and textile types suitable for gifts, which officials carry with them when travelling, in order to promote and publicise the local minority culture (both areas are officially known as 'Autonomous Ethnic Minority Regions'). This new weaving activity has little connection with traditional textile production in Tujia and Zhuang societies, and is only indirectly linked to commercial considerations. Most of the looms have been moved to urban workshops or, as in Napo, to a state-sponsored 'Typical Traditional Village'.

3.8 The current status of weaving: a brief survey

This overview of the status of weaving in the places studied for this book is not a statistically informative survey, rather it is an attempt to offer a picture of the condition of weaving and the wide range in its circumstances, from robust health to complete disappearance:

In two places (Dong weaving in Bazhai, Zhuang weaving in Wenshan) brocading skills had already disappeared by the early twentieth century, and these traditions are now known only in the form of a few surviving textiles.

In twelve places (Buyi weaving in Libo and Xingyi; Dong weaving in Tongdao; Maonan weaving; Miao weaving in Antai, Bakai, Huishui, Panxian; Zhaoxing and Zhouxi; Yao weaving in Longji and Jianghua) traditional weaving techniques are still practiced in their original form by older women, with a few instances of young women learning the techniques.

In seven locations (Zhuang weaving in Binyang, Jingxi, Napo; Tujia in Longshan, Li in Hainan in three locations) traditional skills are still practised, but mainly in government-sponsored venues, such as

demonstration centres, ‘festivals’ for tourists, and workshops producing gifts for official visitors.

In two places (Miao weaving in Geyi and Shidong) traditional brocading techniques are still in use, the transmission of knowledge continues, and textiles are woven to fulfil their original functions.



Fig. 2 Detail of a woven Miao baby carrier panel from Liuhe (Liping county, SE Guizhou), mid twentieth century. Woven designs such as this one are now being made by embroidering, rather than by brocading on a loom.

Even in locations where traditional techniques are thriving, handspun and naturally dyed yarns have largely disappeared, so textiles made today appear very different to those made in the past.

3.9 From weaving to embroidery

As brocade weaving disappears, treasured patterns sometimes continue to be reproduced in embroidery. This phenomenon is not new, for example Miao people in the Liuhe area of Liping county (Southeast Guizhou) have been embroidering patterns copied from ancient brocaded baby carrier panels since the early twentieth century (Figs. 2 and 3). In Panxian, Miao capes decorated with woven panels are being replaced by their embroidered equivalents (Fig. 4), with the same motifs. In Zhouxi nowadays, because of a dearth of weavers,

Miao brides either use old baby carriers inherited from their mothers or grandmothers, or embroider new ones instead of weaving them. A renewed demand for traditional baby carriers is encouraging some young weavers to take up weaving, (Figs. 5 and 6), though some brides purchase cheaper machine-embroidered baby carriers in the local market (Fig. 7).

In some places embroidery skills have always complemented weaving skills. Several weavers (Hong Yao, Miao in Panxian) told us that they had to learn embroidery as a necessary first step before being allowed to study brocade weaving. The Miao in Geyi and Shidong also record all of their brocade patterns in the form of embroidered samplers. These have the same structure as the weaving, but use thicker threads to facilitate counting and copying.



Fig. 3 Baby carrier panel made by Miao people from Liuhe (Liping county, Southeast Guizhou), 29 cm × 27 cm, mid-twentieth century. Made using embroidery and/or brocading in silk on a cotton ground weave. This type of panel was traditionally woven on

a loom in a weftfaced compound tabby technique that was gradually abandoned during the first half of the twentieth century. As some local women recall, there was a time when the two techniques coexisted and weavers and embroiderers competed to produce the finest patterns with the same basic structure and appearance. As a result, it is sometimes almost impossible to distinguish between the two techniques.



Fig. 4 As the Dahua Miao people moved from Panxian county to a new village in central Guizhou, they did not take their looms with them, but continued to reproduce traditional woven patterns (right) using embroidery (left).

3.10 Conservatism and change

The core elements of traditional brocade weaving are the loom and associated techniques. As described, few if any weavers show any inclination to make changes to loom design, and as far as we can tell looms made today are identical to those made a century or more ago. In some aspects of the weaving process, however, there is scope for the individual weaver to make choices. For example, the number of tabby ground wefts inserted between patterning wefts seems to be an individual decision: amongst Buyi weavers in the Libo area this can vary from one ground weft up to 11 wefts. Dyes, colours and yarns (Appendix 3) have also evolved considerably in the last century: the majority of weavers have abandoned handspun yarns and natural dyes in favour of commercial yarns and dyes. Woven patterns are more resistant to change, especially if they are recorded in the form of pattern sticks found on some Daic looms. Motifs seem to have remained relatively static until the mid-twentieth century, when outside influences brought about some innovations, for example in weavings made to official order in government sponsored workshops since the 1950s.

3.11 The future of weaving

The challenges that traditional weaving faces are a microcosm of the many issues facing contemporary society. The availability of commercial textiles and clothing has freed people from the necessity of making the clothing they wear. At the same time this situation has created new demands: most women from rural provinces in China work full time, even after bearing children. They are obliged to survive and compete in a new type of economy that is built around cash. Many work away from home in distant provinces, while their children are raised by their grandparents. Under these circumstances, a long and arduous apprenticeship in weaving is an impossibility. Rural society has responded to these changes by no longer demanding that women weave or judging them on the quality of their handiwork.



Fig. 5 Encouraged by a recent revival of the custom for brides to present baby carriers decorated with hand woven brocade at weddings, a young Miao woman (carrying her newborn child in an old woven baby carrier), works at her weaving apprenticeship. She hopes to earn a living by weaving baby carriers for brides who are not able to weave. Qingman village, near Zhoushi, Southeast Guizhou.

A new market has sprung up in recent years, however, for the sale of traditional textiles to women who want to continue to wear them, particularly at weddings and festivals, but who are no longer weaving. The expansion of this market will be one route by which some traditional skills will survive amongst some weavers. Commercially produced yarns and dyes, much derided by Western purists, play an essential role since little weaving at all would survive without them.

Another means of survival is that provided by government-sponsored weaving workshops, discussed above. These undertakings have been a feature of life in rural provinces since the 1950s, and have undoubtedly helped preserve some weaving skills that might otherwise have been lost. Some Zhuang and Tujia weaving has benefited from this type of government intervention, and it is doubtful that it would have survived to the present day without it. This model creates some anomalous situations however: in some cases the weavers are not of the same ethnicity as those who originally practised the weaving traditions.

A related activity, the manufacture of tourist souvenirs, has come into its own in some areas in the past decade, concurrent with the growth of tourism in the Southwest. As with the government sponsored workshops, some of which also produce tourist souvenirs, the 'tradition' has undergone significant changes to adapt to this market, for example Tujia weavers produce small, brightly coloured decorative hangings for sale to visitors, rather than the large wedding blankets they made in former times. There is also an ever-present risk that profitable souvenirs will be copied using cheaper techniques such as computer-controlled embroidery or machine weaving.

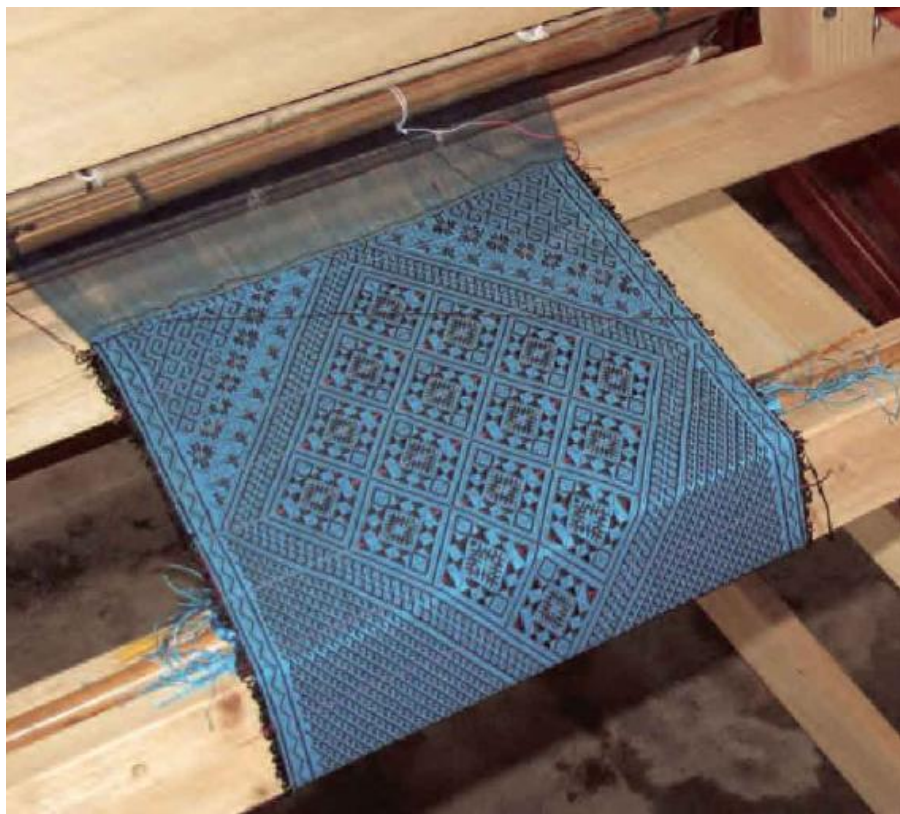


Fig. 6 A traditional Miao baby carrier panel being woven by hand on a loom in Qingman village, near Zhouxi.

It should be clear from the foregoing that there is no question of weaving surviving in its traditional role, in which the majority of women wove and weaving was central to female identity and standing in the community. The structure of Chinese society has changed so radically that this is no longer appropriate or even desirable. At the same time, we hope that some variants will survive. On a personal level we enjoy traditional weaving, and many people in Southwest China value it in a similar way. The best hope for survival probably lies with rural prosperity increasing to the point where the wearing of traditional clothing for weddings and festivals becomes a status symbol once again, and the creation of these items by specialist professional weavers is supported as a result. The role of local customers is critical because they understand the difference between high quality handmade work and machine-made imitations (and will choose the former if they can afford it), which casual visitors seeking souvenirs often do not appreciate.



Fig. 7 Computer embroidered copies of Miao baby carrier panels from Zhouxi, such as the one in Fig. 5, on sale at the Sunday market in Kaili.

Recently, some local Chinese and overseas textile designers have begun to take an interest in traditional textiles from this region, and have produced some novel textiles using traditional techniques in partnership with weavers from Southwest China (see Preface). This is one manifestation of a growing appreciation of minority weaving cultures across China.

What role can this book play in the preservation of tradition? We are not so naïve as to believe that a book of looms and textiles can revive traditional culture. As we stated at the outset, our aim is more limited: to record the diversity of this tradition while we can. Nevertheless, this book is a record of designs and techniques that may be of value in the future. It records textiles and methods that, in some cases, can no longer be seen in the places where they were originally practised. We hope that *The Roots of Asian Weaving* will serve as a primary resource and an inspiration for scholars and weavers alike.



1 Langford [2009, 181–183], quoting Hinsch [2002]: ‘The girl would have learnt to spin and weave at a very early age and then to make cloth to help with the dowry to be paid on her marriage. ... For the Han Chinese girl, preparation for the wedding was a path started as soon as she learnt to spin and weave at a very young age. She was expected to be a competent, even spinner and weaver before the marriageable age as this was an important factor in choosing a wife. When married the bride became part of her husband’s family, and lived under the rule of the mother-in-law and expected to contribute to the textiles of the household and the taxes. However, once again reflecting their social importance as the textiles she brought as her dowry were always hers and could be re-claimed in the event of divorce.’

2 Yang Wenbin [2002, 179]. No scientific analysis of these items has been carried out, as far as we are aware.

3 华阳国志-巴志.

Part II

Field research

Chapter 4: the Miao-Yao peoples

4.1 The Miao

The Miao, one of the first Chinese ethnic groups mentioned in ancient Chinese annals, have been notably successful in preserving their distinctive identity despite a long period of contact with other ethnicities. In the *Shiji*,¹ the San Miao ('Three Miao') are described as playing a key role in the history of early Chinese civilization. Contemporary linguists also separate the Miao into three subgroups. Today the Miao number around 10 million, more than half of whom live in Guizhou province.

Recent archaeological and linguistic discoveries have tended to corroborate ancient texts and legends; they point to the early presence of ancestral Miao groups in the middle basin of the Yangzi River.² Several Han Chinese terms related to rice cultivation share cognates in the Miao language, and it has been suggested that they are in fact of Miao origin [Blench 2005]. What seems certain is that the Miao played a role in the origin of rice cultivation in the region that subsequently became China. Both Chinese and Western scholars agree on the significant contribution of Miao culture to Chinese civilization, at least until the Chu kingdom (BCE 847–223), which may have been a multilingual, multicultural state. The role played by the Miao seems to have gradually diminished after that time, as they moved westwards, ultimately settling in and around Guizhou.

According to the *Shiji*, a text that is probably partly historic, partly legendary, a long war raged during the twenty-sixth century BCE for the control of the Central Plains (the middle Yellow River basin, considered the birthplace of Chinese culture). The antagonists were Huang Di, the Yellow Emperor, conventionally viewed as the founder of Chinese civilization, and Chi You, leader of the *jiuliz* (the 'Nine Li' or 'Nine non-Han tribes'), an alliance of tribes that included the San Miao. The Yellow Emperor defeated Chi You,⁴ the latter being

decapitated. According to Miao mythology, a maple tree grew from a drop of his blood.

Following Chi You's defeat, the Miao are believed by some historians to have fled south and to have separated into three groups: the Hmu settling in Southeast Guizhou, the Qociong (Gexiong) in Northwest Hunan and Northeast Guizhou, while the Hmong moved further west, some of them settling in Western Guizhou and Eastern Yunnan, others moving further towards Burma, Laos, Vietnam and Thailand.

Today, more than four millennia later, the myth of Chi You is still very much alive, particularly in the provinces of Guizhou, Hunan, Hubei and Guangxi. Regarded as a brutal and illiterate barbarian by the Han, he is still venerated as a heroic ancestor by several ethnic groups, especially the Miao. Tall wooden statues representing Chi You with protruding canine teeth, four eyes and six arms are still present in numerous temples, one of which is dedicated to him at Wuluoshans in Southwest Hubei. Locally he is sometimes associated with the God of Soldiers, the God of Rain or a descendant of Yan Di,⁶ who is himself considered a founding ancestor by the Han.

The maple tree, such as the one said to have emerged from the blood of Chi You, plays a central role in Miao mythology. According to Miao legend, the first Miao ancestor, Jiang Yang (Chi You's family name is also believed to be Jiang), was born from an egg incubated by the bird Ji Yu, which itself was born from a maple tree.

The early route of Miao migrations is conjectural, but it is indisputable that significant westward migration took place, continuing until recent times. The fact that an ethnic group could preserve its cohesion, its culture and language after migration over the course of more than four millennia and thousands of kilometres is in itself exceptional, especially when taking into consideration the continual proximity of the Han civilization. After their arrival in Guizhou, the Miao benefited from the relative inaccessibility of this mountainous area, leading an isolated existence that offered them protection from conquest and helped them to maintain their original culture and system of governance at least until the late Qing dynasty.



Fig. 1 Postcard from around 1900, with captions in Chinese and French, depicting two 'Flowerly Miao' (a Han Chinese name) from 'Anshun county'. The woman's headdress is characteristic of a Hmong Miao group living in Liupanshui county in West Guizhou province. The man is holding a set of lusheng pipes, an ancient musical instrument that is characteristic of the Southwest region.

Throughout history, Miao society remained structured along clan lines, and it appears both from historical records and ancient songs that it is unlikely there were ever Miao 'kings'. Even at the village level, several clan leaders usually shared local authority.⁷ Leaders only came to the fore during times of rebellion, which were numerous, especially under the Qing dynasty when the imperial government, applying the principle of *gaitu guiliu* (see Chapter 1), decided to take direct control of the areas where the Miao had enjoyed varying degrees of autonomy. Generally speaking, the further from waterways and the more mountainous the areas they lived in, the more autonomy the Miao retained. Some of the most catastrophic wars erupted under the reign of Emperor Yongzheng in the early eighteenth century, when imperial troops under the command of Prince Ortaï attempted to take over large areas of Southeast Guizhou. A second and final wave of large scale rebellions that continued for twenty years (1851–1872) over most of Guizhou, ended in the indisputable victory of the imperial power. It is generally accepted that these lengthy wars resulted in the death of millions of Miao [Jenks 1994].

A people without writing (at least until recent times), the Miao have an oral tradition of songs and legends, some of which relate to their long migration from a 'lost paradise', supposedly located in the far north (see Preface). They also retained distinctive textile techniques

and patterns, silver jewellery, hairstyles and adornment, and animist beliefs. Each clan distinguished itself from its neighbours through the medium of women's costumes, created with a remarkable diversity of styles, textiles and patterns.

In terms of brocade weaving, the Miao do not use complex pattern systems.⁸ Instead, they rely on simple arrangements of bamboo tubes to separate the warps into several layers (which we refer to in this book as the Tubes-and-Layers system). Warps are counted and selected for patterning purposes with the fingers, a sharpened stick or a hook, relying on memory or a model (an old textile or embroidered guide). Their patterns and motifs are mostly conservative and feature abstract, geometric, or highly stylized motifs.

1 *Memoirs of the Grand Historian* (also known as the *Historical Records*) 史记-五帝本纪-集解, considered the foundation of Chinese historiography, written by Sima Qian around BCE 100.

2 'The Miao-Yao are thought to be linked to Neolithic societies including the Daxi Culture (5,300–6,400 YBP) and the Qujialing Culture (4,600–5,000 YBP), who settled along the middle reaches of the Yangzi River in Southern China.' In Fei Xiaotong [1999].

3 九黎.

4 蚩尤.

5 武落山.

6 炎帝.

7 'This [Miao] society was very loosely articulated, without headmen or lineage institutions.' Sutton [2006].

8 One instance described by Torimaru [2006, 90–93] is an exception, the result of a Dong woman marrying into a Miao family.

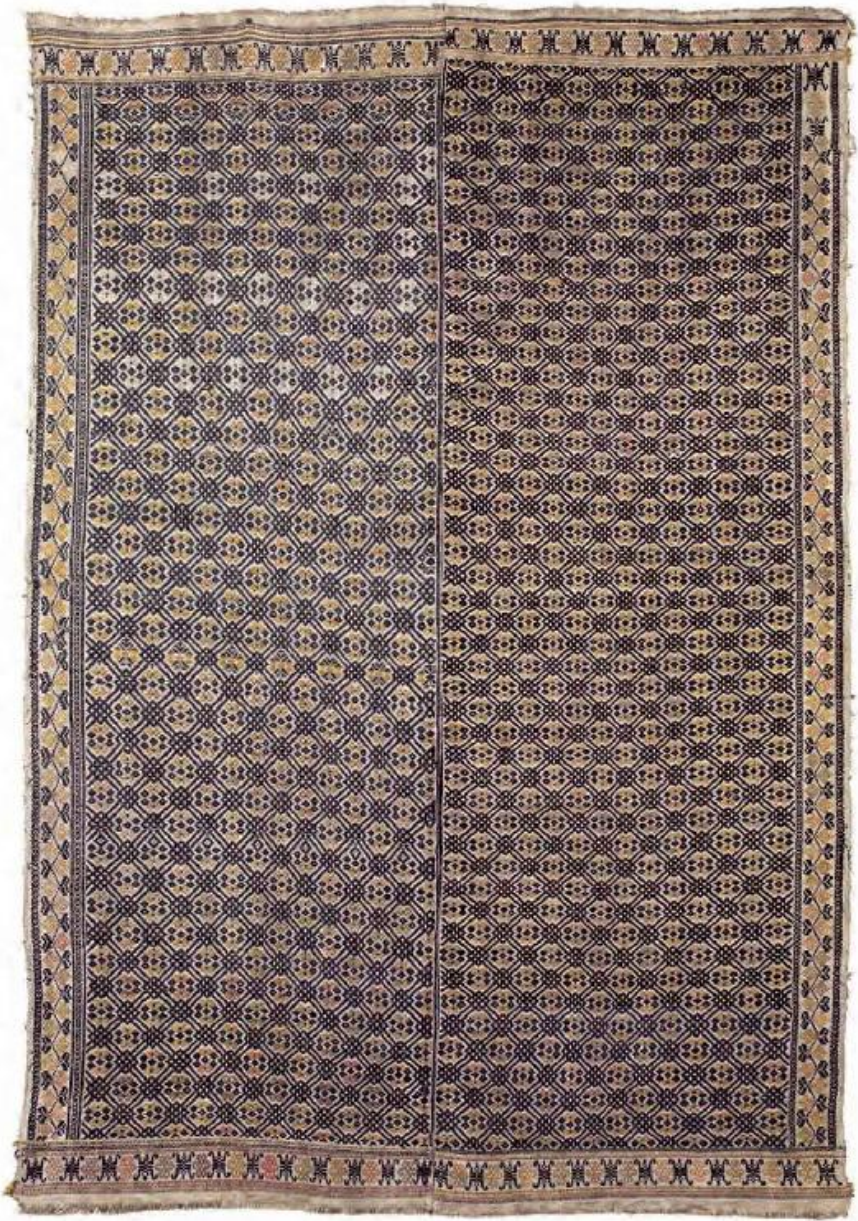


Fig. 1 Wedding bedcover, 113 cm × 78 cm, silk and cotton, circa 1900. This is a typical Miao wedding bedcover from the Antai area; made of two panels, with central field of abstract geometric motifs, framed by borders enclosing floral vines and horizontal band with alternating stylised shou characters (a Chinese character meaning 'longevity') and endless knots. This textile is unusual in that it includes some natural dyes: most surviving examples are decorated with synthetic dyes. Like many other bedcovers illustrated in this book, it would originally have been bordered with plain cotton and would have been used as a covering for a blanket made of cotton wadding. He Haiyan collection.

4.2 Miao weaving in Antai

Peixiucunshangtun village, Antai district, Rongshui county, Guangxi province. 广西省, 安太乡, 融水县, 培秀村上屯. Surveyed in March 2012 and May 2013.

This village is located in a picturesque mountainous area and has become a small scenic resort for weekend visitors from Nanning and Liuzhou, about five hours away. It has a modest museum devoted to traditional Miao culture, and better road access than other villages in the surrounding area. There is a nature reserve close by and wild boar and bears are said to live in the forests.

The local Miao (so-called Miao in some cases, as explained below) population provides an interesting case study of the way in which Southwest China was populated over the course of history. The people living here claim that they speak a Miao language (as well as Han Chinese) and follow Miao customs, or at least what remains of them, but they do not form a homogeneous group. Isolated, well irrigated and fertile, with plenty of available land in the past, the area was an attractive refuge for people escaping famines, wars or problems with the law in other parts of China. One resident, in his forties, explained to us that different families arrived in successive settlement events, from different places and at different times, adopting the culture of the Miao people who had arrived before them. Newcomers have not always acculturated with existing non-Han populations in Southwest China: in this village the process may have been facilitated by arrivals coming in small numbers with low status or even refugee status. Blending with existing populations may have been a prerequisite for survival under such conditions.

The Liang 梁 family claims to have been the earliest to settle in the village, more than 20 generations ago. The He 何 family arrived later, about 17 or 18 generations (400 to 500 years) ago. Their records, a typed copy of which was shown to us, state that they came from Anhui Province in Eastern China, via Hunan. Their genealogy clearly shows that they are of Han origin. A member of the He family told us that the last migration to the village was quite recent: the Dong family who arrived in the 1940s. During the 1950s the village became so crowded that people started to create new villages in the surrounding mountains and the number of households diminished from 1000 to

around 300.



Fig. 2 Mountainous landscape, rice terraces and a traditional farmhouse in the Antai district.



Fig. 3 A hand-woven baby carrier of traditional design in Antai.

A further factor promoting acculturation, and a widespread phenomenon in the areas occupied by minority peoples in Southwest China that began in the 1950s, is the trend for arriving Han families to identify themselves as Miao, because of privileges given to 'national minorities'. These include a better chance for children to attend university and the right to have two children instead of one, a rule that until recently was applied quite rigorously to the majority Han population.

The weaver who demonstrated her brocade technique for this survey, Liang Yuying, says she is 'more than 50 years old' and that she learned how to weave brocade from her mother at the age of 15. Liang was weaving a wedding bedcover for her daughter at the time of our visit. She said that her daughter has not learned the technique as she does not have the time. Brides whose mothers do not weave wedding bedcovers and baby-carriers for them will sometimes buy them on the local weekly market; a bedcover costs about 800 RMB. This trade seems limited in extent and is not on the same scale as the trade in woven textiles that we found in the Shidong area.

There are fewer restrictions or taboos in Antai about weaving brocade compared to other Miao groups in Guizhou. This is perhaps related to the recent arrival of many families in the area. Liang indicated that women can weave when they are pregnant (a taboo in some areas) and that the setting up of warps, which is strictly limited to women in other Miao places, can be performed with the help of men; one local man is even considered a specialist in this task. She told us that the work can also be done during the first lunar month. An auspicious day has to be chosen for setting up warps however, to ensure that they do not get tangled. According to Liang, the local tradition was for a bride to present at least two or three bedcovers (up to eight for richer families) as well as some woven baby carriers as part of her wedding trousseau.

The loom

The loom (Figs. 4 and 5) is a relatively simple back-tension frame loom with no patterning system (neither tubes inserted in the warp nor pattern rods). A beater-shuttle is used to insert the ground wefts and to beat them in. Some weavers use a flat bamboo blade to open patterning sheds for the insertion of continuous supplementary wefts, though not all weavers use continuous supplementary wefts. Weavers use an ox-bone hook to insert discontinuous supplementary wefts, which are pre-cut to length, rather than using a bobbin or a shuttle (Fig. 10).

Weaving technique

The front of the brocade faces up when it is mounted on the loom.

Synthetic yarn is used for the wefts; white and thin yarn for the ground wefts, thicker and coloured for the supplementary wefts. Black wefts run from selvedge to selvedge, with discontinuous wefts in different colours forming the pattern.

Liang knows the patterns she weaves from memory; she does not use models or samplers to select the warps. The range of motifs is usually

limited to a few traditional geometric motifs.

She begins by opening a patterning shed with a long, flat bamboo blade (Figs. 6 and 7). The blade remains in place while the discontinuous supplementary wefts are inserted. She does this by first selecting and picking warps with the bone hook, then inserting the discontinuous wefts with her fingers (Figs. 8 and 9).



Fig. 4 Liang Yuying weaving a bedcover panel.

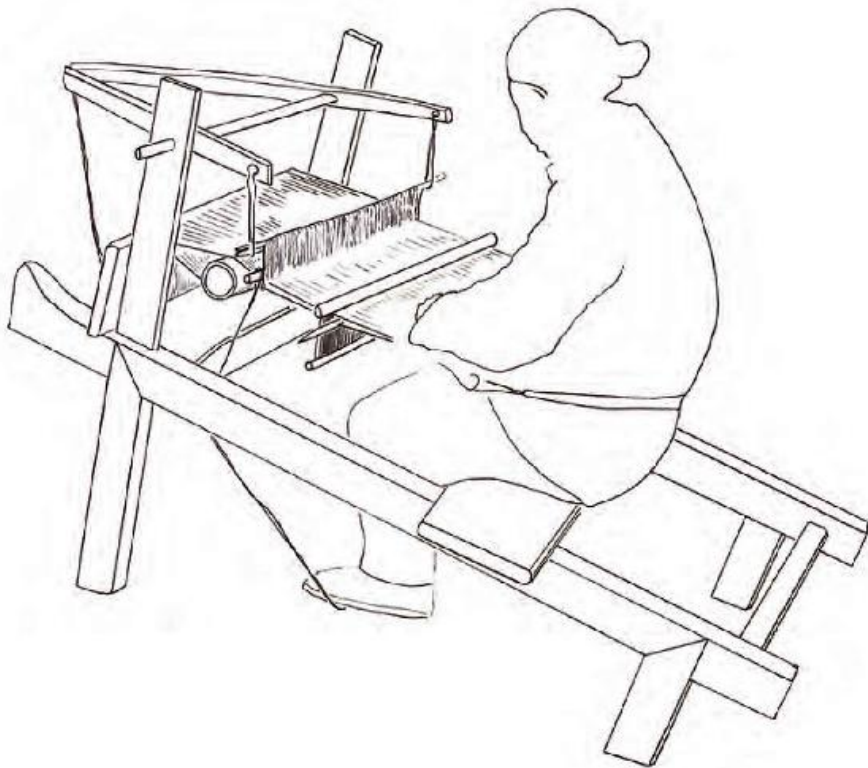


Fig. 5 Liang Yuying at her loom.



Fig. 6 Opening a pattern shed with a bamboo blade. The bowshaped bamboo rod below is

a temple, tensioning the woven cloth.



Fig. 7 The bamboo blade has been inserted, opening the shed for the continuous supplementary weft.

After inserting a discontinuous weft, a length of continuous supplementary weft is inserted, using a spool, in the shed created by the flat bamboo blade. The bamboo blade is then removed and the tabby ground weft is passed through with the help of a beater-shuttle.

Liang weaves between 0.5 cm and 1 cm of brocaded cloth per day. It is difficult to estimate the number of hours she spends on the loom since she is also busy with domestic chores. As supplementary wefts are inserted manually, without a tube or rod system, weaving on this loom is one of the most time-consuming in Southwest China.



Fig. 8 Inserting the discontinuous supplementary wefts with an ox-bone hook.



Fig. 9 Discontinuous supplementary wefts inserted and ready for beating-in.

Loom characteristics

Total number of warps: 704

Number of warps per reed space: 2

Brocade width: 50.2 cm

Wefts are beaten-in using a beater-shuttle



Fig. 10 Yarns to be used as discontinuous supplementary wefts hang on the loom at the back; they are cut to length when needed.

Glossary of Terms

Loom: *song dao*

To weave: *ma da'er*

Warp beam: *bang jiang dai*

Cloth beam: *dou jiang dai*

Heddle: *sou da'er*

Beater: *gniang da'er* (identical with shuttle)

Reed: *ye*

Brocade: *bie lai*

Tabby: *dao*

Warp: *ha'er*

Weft: *wan dao*

Shuttle: *gniang da'er*

Back strap: *gou bei*

Treadle: *lao dei*

Bamboo tube separating warp layers: *doing mong*

Bone hook: *dou ti da'er*



Fig. 11 Details of the front and reverse sides of Fig. 16. The design is of confronting birds in flight and eight-pointed stars; in this case the weaver has used discontinuous supplementary wefts (only) to make the design.



Fig. 12 Detail of Fig. 15.

Structural analysis

Supplementary weft compound tabby, used as wedding bedcover panel, late twentieth century. Panel is 50.2 cm wide. Pattern repeat: 24 supplementary wefts.

Thread count: 17 warps, 26 wefts (13 ground wefts, 13 supplementary wefts) per centimetre.

Warps: off white cotton. 3-ply, S-spun.

Ground weft: off white cotton. single-ply, no apparent torsion.

Continuous supplementary weft: black cotton, 3 parallel 2-ply threads, S-spun.

Discontinuous supplementary weft1: silk floss in blue, purple, pink, grey.

Discontinuous supplementary weft2: cotton in green, orange, red; 4 parallel 3-ply yarns, S-spun.

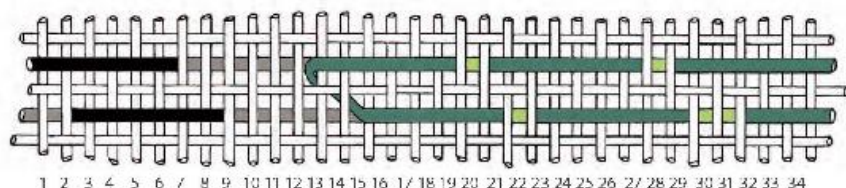


Fig. 13 Woven structure.



Fig. 14 detail of Fig. 16.



Fig. 15 Central panel of a baby carrier, 74.5 cm × 36.5 cm, silk and cotton, natural dyes, nineteenth century. Eight-pointed star motifs occupy the centre of the design, bordered by zigzags. He Haiyan collection.



Fig. 16 Wedding bedcover, 137 cm × 82 cm, silk and cotton, synthetic dyes, mid twentieth century. Central pattern of confronting birds and eight-pointed stars; swastikas on the horizontal borders. The irregularity of the hand weaving (weft spacing in particular) explains the 'mismatch' of the patterns of the two panels. He Haiyan

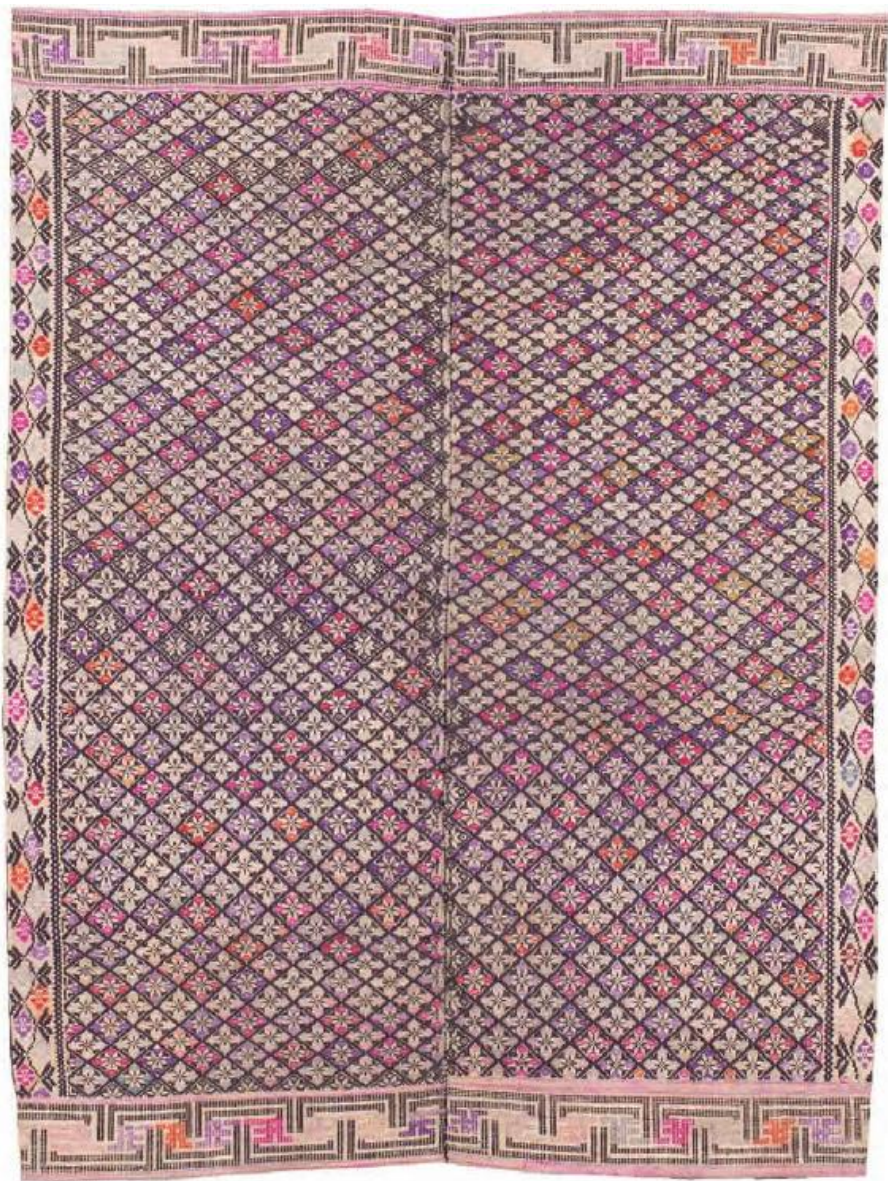


Fig. 17 Wedding bedcover, 70 cm × 52 cm, silk and cotton, synthetic dyes, mid twentieth century.

The central field is decorated with geometric floral motifs; the vertical borders with a floral vine and the horizontal borders with swastikas. He Haiyan collection.

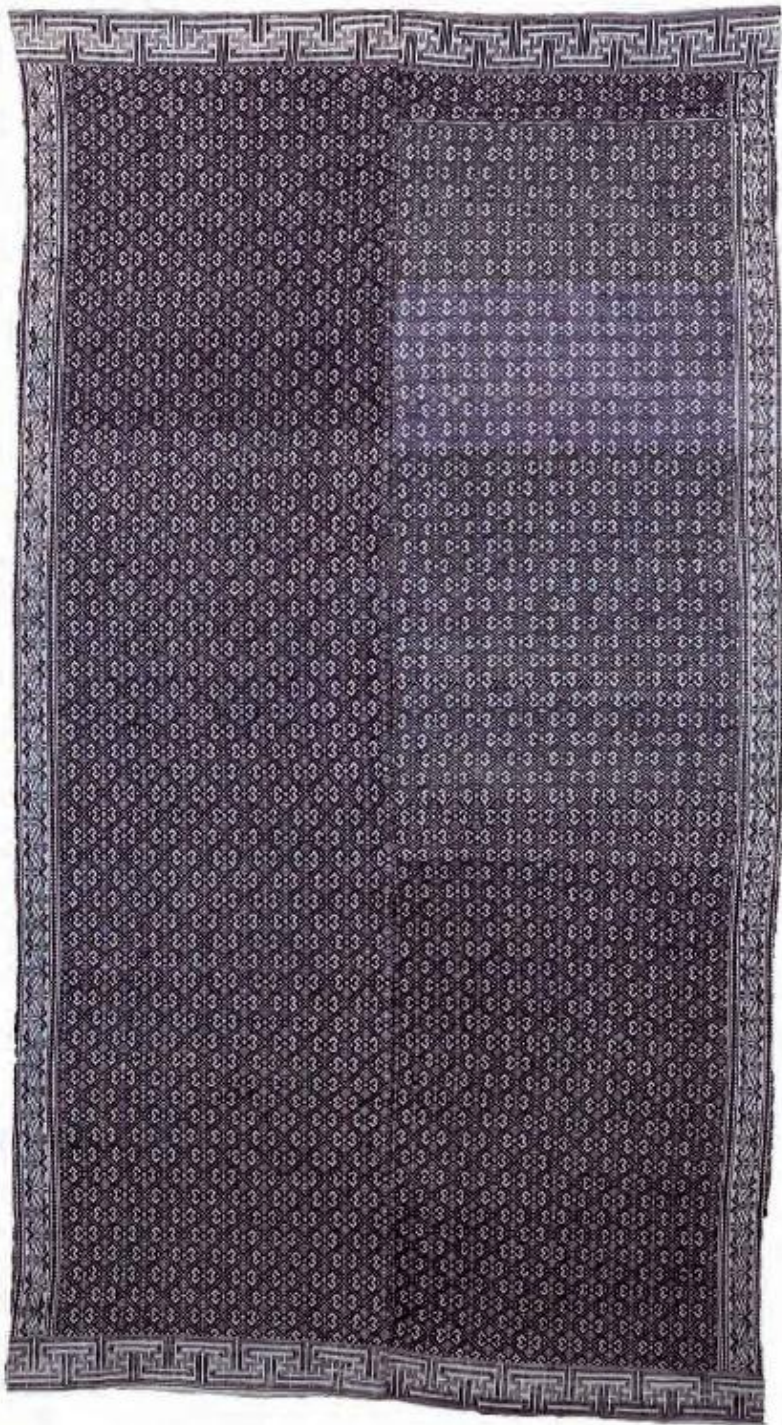


Fig. 18 Wedding bedcover, 132 cm × 72 cm, silk and cotton, indigo dye, early part of the twentieth century. The central field is decorated with geometric floral motifs; the vertical borders with a floral vine and the horizontal borders with wanzi (swastika) motifs. He Haiyan collection.



Fig. 19 Baby carrier panel, 116 cm × 37 cm, silk and cotton, indigo and synthetic dyes, early twentieth century. Geometric pattern including the 'eight-pointed star' motif. He Haiyan collection.

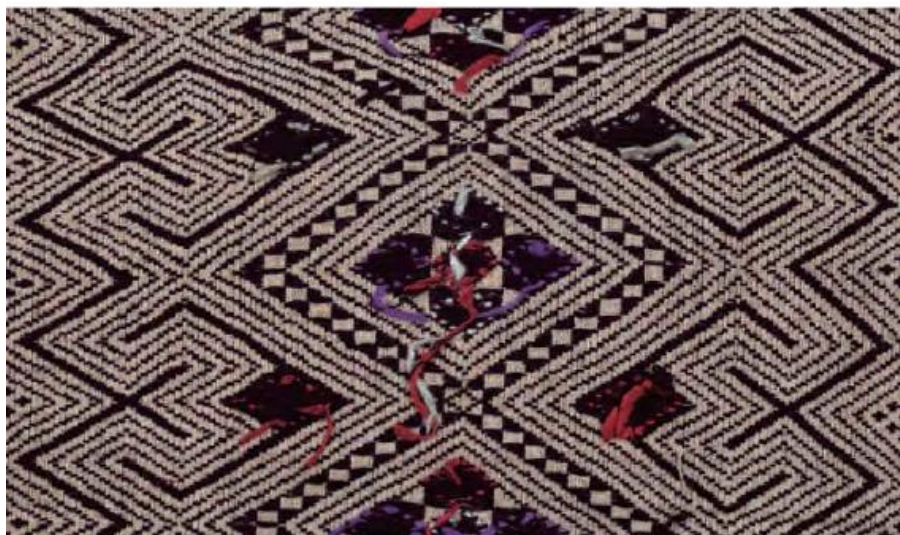


Fig. 20 Front (above) and Fig. 21 reverse (below) details of Fig. 19.





Fig. 1 A woman's festival jacket, 171 cm × 64 cm, wool and hemp or ramie, natural (including indigo) and synthetic dyes, early twentieth century. Decorated with a combination of hand-woven brocade and appliquéd batik. He Haiyan collection.

4.3 Miao weaving in Panxian

Huashiban village, Panxian county in Western Guizhou province. 贵州省，兴义州，盘县，滑石板村. Surveyed during May 2013.

Th people in this area are called Xiao Hua Miao (Small Flower Miao) by their Han Chinese neighbours. Huashiban village, composed of 300 households, is located in one of Guizhou's poorest areas. The rocky, boulder-strewn subsoil, an omnipresent feature of the landscape, does not permit the creation of the terraces that are required for rice cultivation, so local crops are mostly limited to maize and potatoes.

Li Xinghui, 41, says that she began to study embroidery at the age of 12, and started to learn brocade weaving at the age of 16. She told us that embroidery is considered a prerequisite to brocade weaving as it makes it easier to visualize and count the threads and to learn the traditional motifs.

Amongst all the villages that we visited, Huashiban has the highest number of brocade looms still in active use in a domestic context (Maopo in the Shidong area also has many looms, but most of the brocade weaving there is done on a commercial basis). At the time of our visit, we estimated that at least one out of two households was still equipped with a traditional brocade loom. However, only women in their forties or older were able to weave brocade. The technique is declining, Li said; only a dozen younger women at most know how to weave and only a few young women were in the process of learning.

In another village nearby, no looms could be found and women said that they were now embroidering their festival jackets as a way reproducing the traditional patterns that were formerly woven on the loom.



Fig. 2 Huashiban village.

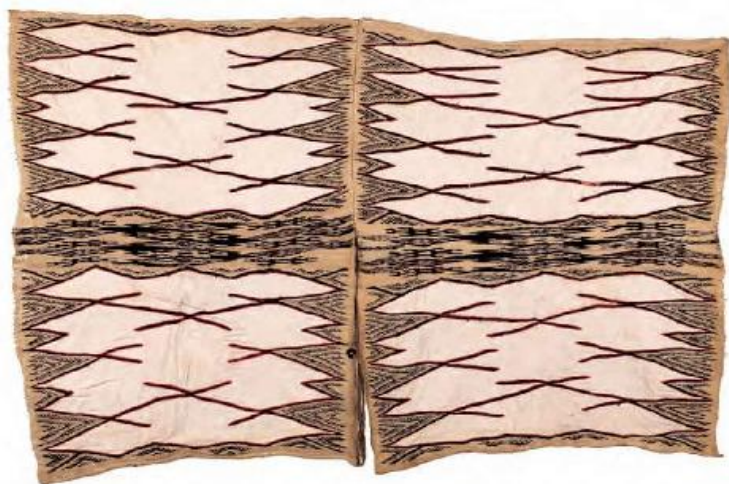


Fig. 3 (Above) cape, 147 cm × 91 cm, wool, cotton and hemp or ramie, early part of the twentieth century. (Below) details of the front and reverse (on the right) of the brocaded portions. He Haiyan collection.

According to Li, during the 1990s yarn materials underwent a radical change from hand-spun wool (used for supplementary wefts) to

‘synthetic wool’ and from home grown hemp or ramie (used for warps and tabby ground wefts) to commercial cotton, often mixed with synthetic fibres. The use of natural dyes has completely disappeared; some older weavers still remember how the bark and leaves of the *huayang* tree 桦杨, probably a type of poplar or birch, were used to obtain black pigment. They also told us that *honggaozi* or ‘red paste’ was bought in the market to produce a red colour: its composition is unknown.

Li told us that an old taboo which forbids weaving during the first lunar month is still observed, and that during this period all looms have to be cleared of yarn.

The local brocade is mostly woven in the form of rectangular panels used to decorate jackets, which are worn by both men and women at festivals and important family events. It takes about a year and a half to complete a fully decorated costume. Baby carriers were also decorated with brocade in the past, but at present they are all embroidered or bought in the local weekly market.

An older weaver recalled that in the past a bride had to present at least six full costumes to the groom’s family at her wedding, made entirely by herself, and decorated with both brocade and embroidery. However, Li added that over the past twenty years the situation has changed considerably: men no longer wear traditional costumes while women only wear their traditional attire on rare occasions such as weddings or festivals.



Fig. 4 Li at her loom; the top of the vertical frame is attached to the window bars and its base is kept in place with boulders.

The loom

The back-tension frame loom used in this area is one of the simplest that we have found. It has no horizontal frame, and consists only of a vertical frame (two uprights with some cross-members) that supports the warp beam (Figs. 4 and 5). This is held in place with two heavy stones next to the base of the two uprights, and secured at the top to the bars of a window if weaving is done inside the house, or tied to a tree if outside. As with other back-tensioned looms, the tension in the warps is created by the weaver, who sits on a chair or a stool with the cloth beam secured at her waist. The tabby heddle is raised by pulling

a cord attached to a pair of levers.

Loom characteristics

Number of warps: 414

Number of warps per reed space: 2

Brocade width: 34 cm

Wefts are beaten-in with a heavy beater-shuttle

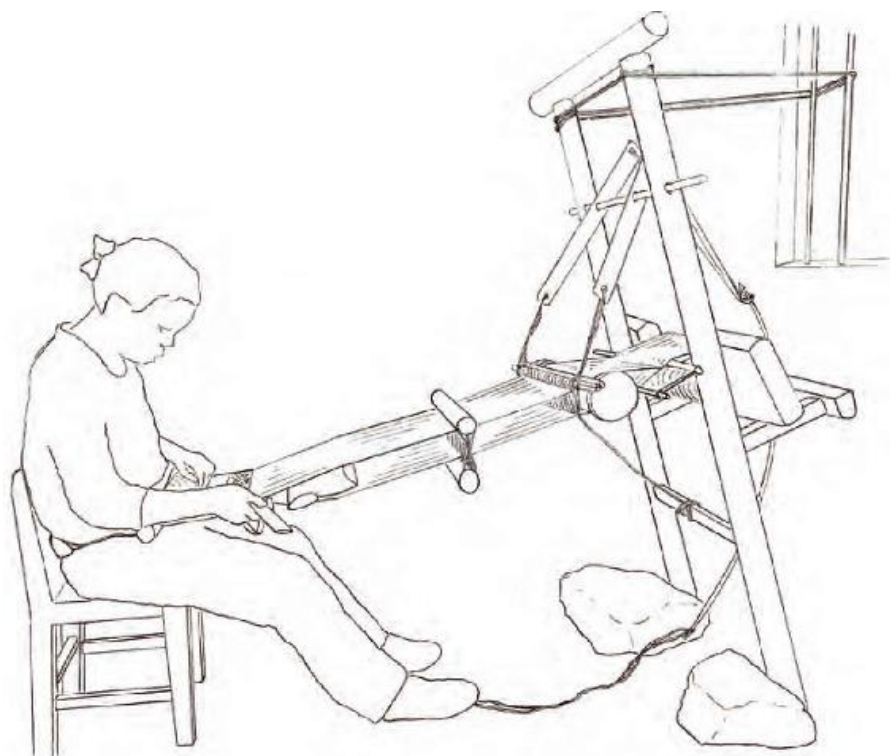


Fig. 5 Panxian brocade loom.



Fig. 6 (Left) inserting blade B1 to open the patterning shed, (right) blades B1 and B2 in position, creating two identical patterning sheds.

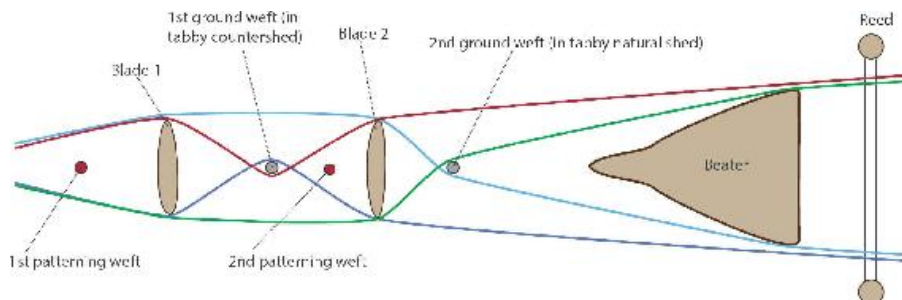


Fig. 7 Loom mechanism.

Weaving technique

The front of the brocade faces up when it is mounted on the loom.

Brocade patterning is done by selecting warps individually by eye, using two bamboo blades, B1 and B2. The heddle is raised by pulling a cord attached to the left foot, thereby opening a tabby countershed in which the beater is inserted. The blade B1 is inserted by hand in front of the beater, to form a first patterning shed (Fig. 6); it is then turned on its edge in order to widen the shed, and the continuous supplementary woollen weft is inserted in front of B1 (between the weaver and the blade B1) with a bobbin. With the beater still in place the cotton tabby ground weft is inserted behind the blade B1 (between B1 and the beater).

The beater is then removed, and the cord is released by the left foot, thus opening a natural tabby shed in which the beater is placed. With B1 turned on its edge, the second blade B2 is inserted behind the row of cotton tabby ground weft, in front of the beater, following the same path as B1. A second row of continuous supplementary woollen weft is then inserted in front of the blade B2 (between the row of tabby ground weft and B2). The next row of cotton tabby ground weft is then inserted in the natural shed.

There are no tubes or rods inserted permanently in the warp to assist

with patterning (Tubes-and-Layers system) that are found on some other Miao looms.



Fig. 8 (Left) Detail of a sleeve panel, (right) reverse side.



Fig. 9 The loom has no horizontal beams, so it can be easily folded and stored in a corner of the house.

Glossary of Terms

Loom: *jin dao*

To weave brocade: *ha nga lou*

To weave tabby: *ndang dou*

Brocade: *ga lou*

Hemp tabby: *dou nang*

Reed: *rua*

Beater: *ng' hao*

Thread (warp and weft): *shao*

Heddle: *be zai*

Warp beam: *zhen dao*

Cloth beam: *zhi dan dong*

Wooden beam separating 2 tabby warp layers: *be long dao*

Flat bamboo blades: *qu ha lou*

Bobbin: *zhu gui sao*

Woollen thread: *blou xiang*

Big cross motif (middle of brocade): *ngei zei* (means crab)

Small cross motif (ends of brocade): *gu ci*

Red: *lia*

Black: *glou*

Yellow: *glang*

Green: *n'zhua*



Fig. 10 Detail of the jacket illustrated in Fig. 13, showing brocade, embroidery and batik decoration.

Structural analysis

Supplementary weft compound tabby, used as a jacket panel, 32 cm wide. Thread count: 13 ground wefts (+12 supplementary wefts), 12 warps per centimetre. Late twentieth century.

Warps: natural white hemp/ramie, 2-ply, S-spun.

Ground wefts: natural white hemp/ramie, single-ply, no apparent torsion.

Supplementary wefts: red and dark blue wool, single-ply, Z-spun.



Fig. 11 (Left) Detail of a sleeve panel, (right) reverse side.

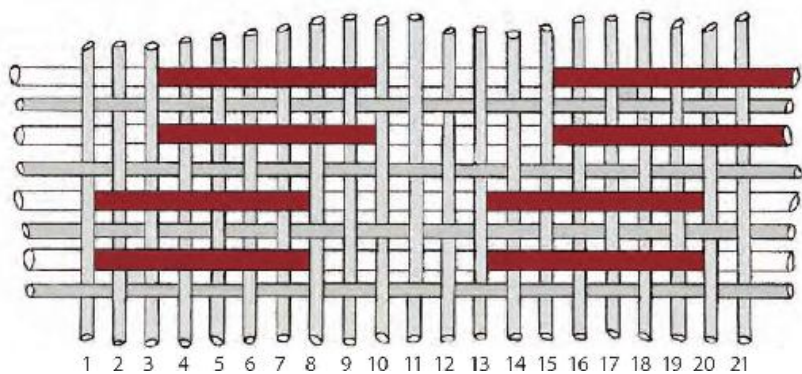


Fig. 12 Weave structure of a sleeve panel fragment.



Fig. 13 Man's jacket, width 123 cm, height 97 cm, wool, hemp and cotton, early twentieth century. He Haiyan collection.

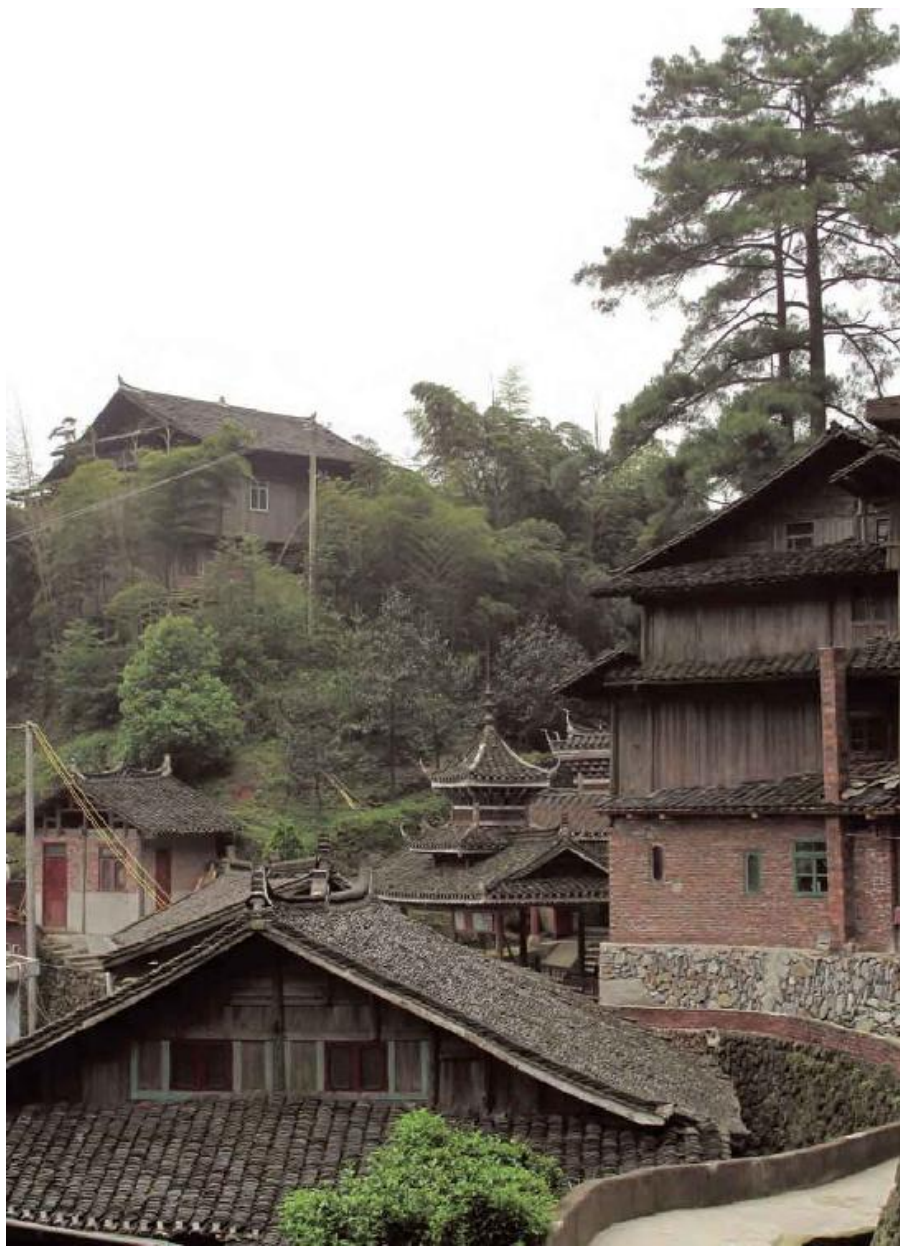


Fig. 1 Pingshan village. The architectural style of the village, with its elaborately decorated, pagoda-like roofs, resembles the style of nearby Dong villages, to whom the Cao Miao are ethnically and linguistically related.

4.4 Miao weaving in Zhaoxing



Fig. 2 On the loom, the front of the brocade faces downwards. The bamboo 'bow' hanging underneath is a temple, which maintains an even tension and width in the woven cloth.

Pingshan village, Zhaoxing district, Liping county, Guizhou province.
贵州省，黎平县，肇兴乡，平善村. Surveys conducted in June 2006 and May 2013.

The inhabitants of this village of 90 households identify themselves as Miao. According to the official classification of ethnic groups in China they belong to the Cao Miao 草苗 branch, who trace their most recent migration back to Jiangxi province. The exact date of their arrival varies, according to various sources in the village, from '200 years ago' to '600 years ago'. However, they do not speak Miao but a language very close to that spoken by Dong people living in the Bazhai area. Linguistically, they belong to the Kam-Sui subgroup of the Daic language family.¹

The people of Pingshan told us they know that other Cao Miao villages exist further to the north and northeast, in East Guizhou and West Hunan provinces, and they are in contact with some of them. Some villagers attribute their adopting the Dong language to the fact that their Miao branch came into conflict with other Miao groups: this quarrel seems to be on-going and they do not wish to interact with Miao villages belonging to other branches.

The structure of Zhaoxing brocade is very similar to that of some garment components woven by the Dong in Bazhai, but it is not possible to compare loom types, as there has not been any brocade

weaving in Bazhai since the 1930s, or even earlier. It is also of interest that the Cao Miao loom does not show any of the characteristics associated with either the traditional Dong (Daic) pattern heddle system or Miao (Tubes-and-Layers mechanism) looms. In fact, the Zhaoxing loom, with its fixed cloth beam and unusual tabby shed opening mechanisms, is closely related to the looms used in central China in ancient times, discussed in Chapter 2 and Chapter 7.

The weaver, Yang Mengxin, who is 50 years old, only weaves during the summer, and does so exclusively for herself and her family.

We were told that a handful of young women were learning brocade weaving, however we saw none of them during our visits and most of the households we visited did not possess a loom. Traditional practices relating to dress seem to be on the verge of disappearance: Yang mentioned that some brides no longer wear traditional costumes for their wedding and those who do often wear a costume made by their mother or another female relative.

According to Yang, in the past every bride was expected to make her own wedding costume. The jacket and skirt bore almost no decoration, most of the brocade work being reserved for the headdress, leggings and apron, as well as for a small wedding bag, the customs relating to which are similar to those that we recorded in the Bazhai area. The central panel of the baby carrier, also made of brocade, could be woven either by the bride or by her mother.

Loom characteristics

Number of warps: 720

Number of warps per reed space: 2

Brocade width: 33 cm

Wefts are beaten-in with a heavy wooden beater

Cloth beam: fixed in the loom frame.

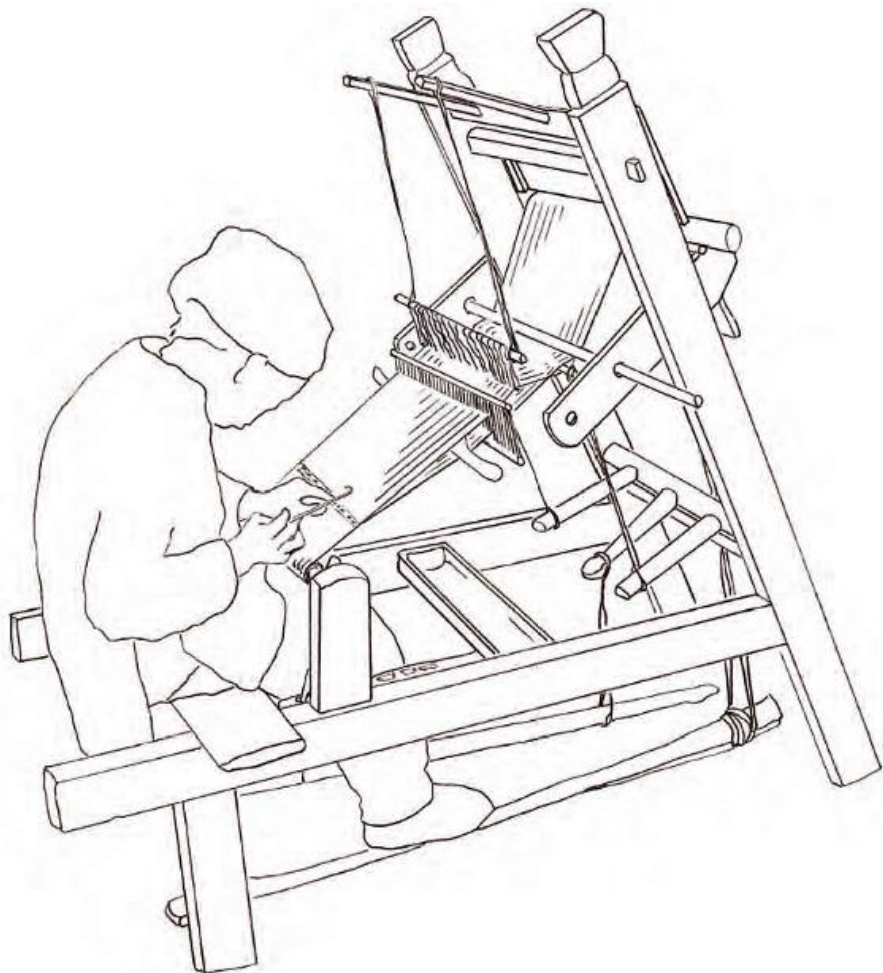


Fig. 3 Yang Mengxin at her loom.

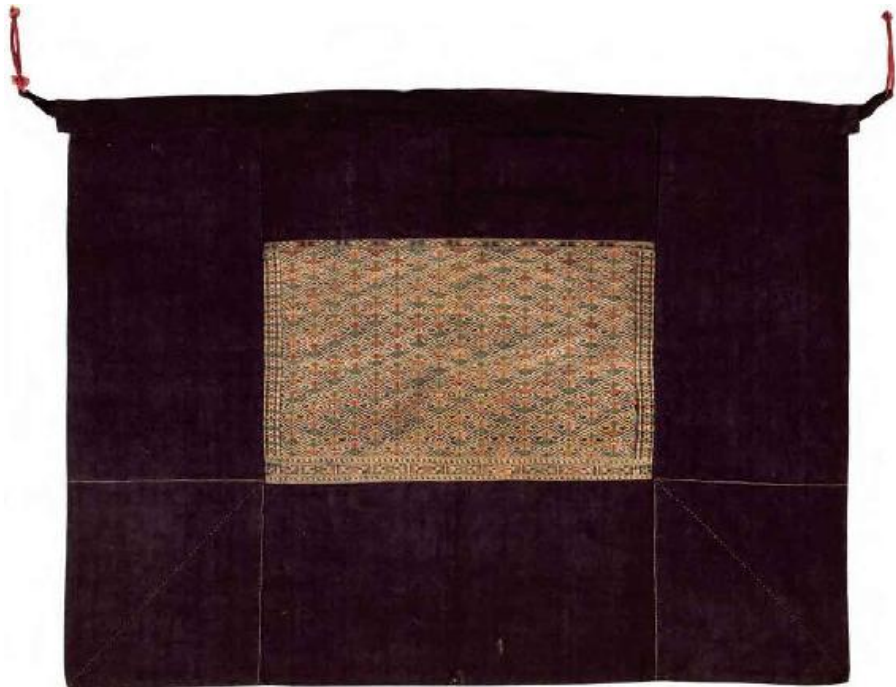


Fig. 4 (Above) brocaded apron, 50 cm × 38 cm, silk and cotton, natural dyes, nineteenth century. (Below) detail. He Haiyan collection.



Fig. 5 Yang Mengxin at her loom, using an old apron as a guide.

The loom

One of the few groups in Southwest China that does not use a back-tensioned loom to weave brocades, the Miao in Zhaoxing use a loom with a cloth beam fixed into the frame. A wooden peg maintains the warp tension: the peg passes through the cloth beam axis and is inserted into slots on the right hand side of the loom frame.

A fixed tube holding the warps down is located in a pair of holes in the loom frame. There are two pairs of holes on the loom: the upper pair is used for brocade weaving, the lower pair for weaving narrower fabrics, such as belts.

A treadle-activated mechanism is used to open the natural tabby shed and countershed. One treadle, located on the right, raises the heddle, creating a countershed. The other treadle, on the left, pulls down a helper stick, placed between the upper and the lower layers of the tabby shed, that enlarges the natural shed. It also assists the weaver with disentangling the two warp layers while lowering the heddle.

Weaving technique

The reverse side of the brocade faces upwards when it is on the loom (Fig. 2).

Brocade patterning is done by hand, using a metal hook to select warps. The discontinuous supplementary wefts are inserted with the help of the hook. The insertion of ground tabby wefts and continuous

coloured supplementary wefts is also done manually, by pulling the weft through the shed with the end of the beater. No shuttles are used, and weft yarns are pre-cut to appropriate lengths. There are two types of supplementary weft weaving: Pattern1 is used for the borders, Pattern2 is used for the central area.

Weaving of Pattern1:

The ground tabby weft is made of two-ply coloured silk yarn in order to obtain a fine, smooth result. The decorative continuous supplementary weft, which passes over two or three warps and under three warps, is composed of three or four untwisted plies (this weft is red in Fig. 6, blue in Fig. 11, white in Figs. 13 and 15). Several rows of tabby wefts alternate with one row of supplementary weft.



Fig. 6 Inserting continuous supplementary weft with a metal hook (Pattern1).



Fig. 7 Weaving the central pattern (Pattern2) of a baby carrier.

Weaving of Pattern2:

One row of tabby wefts (dark cotton) alternates with one row of discontinuous supplementary pattern wefts. The weaver has to count the warps one by one in order to pick the appropriate warps for pattern weft insertion. If she does not know the pattern by heart, she will count the warps on an old fragment (Fig. 5). This counting is sometimes aided by referring to the previous section of woven Pattern1 to locate particular warp yarns. The coloured discontinuous supplementary wefts are inserted using the hook (Figs. 7, 8, 9).

At the time of our visit, Yang was not very familiar with the particular pattern she was working on and had to count each warp and weft section on an old woven panel (Fig. 5); it took her more than one hour to insert the first row of discontinuous supplementary wefts. It would take a weaver familiar with the pattern much less time, however this technique is nevertheless one of the most timeconsuming that we observed.



Fig. 8 Inserting the first row of discontinuous supplementary wefts (*Pattern2*).

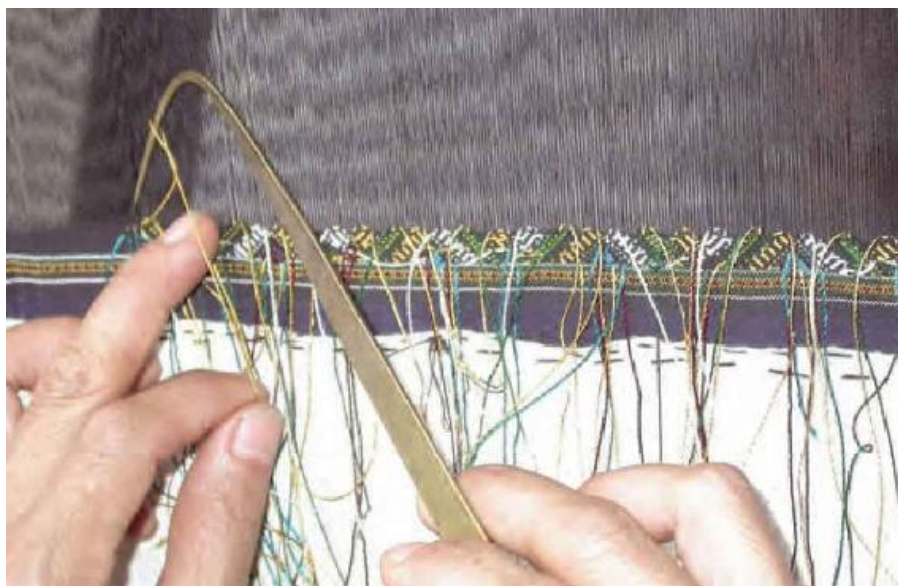


Fig. 9 Several rows of '*Pattern2*' wefts have been inserted.

Glossary of Terms

Loom: *ga (jia) song, mei* (meaning 'wood) *song*. The word is the same for both tabby and brocade weaving looms.

To weave: *dam*

Brocade: *tiu gen* (*tiu* is related to the Chinese *tiao* 挑 'to pick'; this term means 'pattern' locally)

Tabby fabric: *min*

Calendared tabby fabric: *min nam*

Silk thread: *su sen*

Warp, weft: *san*

Reed: *ngo*

Beater: *mei da*

Heddle: *gao*

Hook: *bi (be) qiu (tieo)*

Warp beam: *mei song*

Structural analysis

Supplementary weft compound tabby, used as a baby-carrier panel, late twentieth century. Panel is 26 cm wide; pattern repeat 1.3 cm. Thread count: 26 warps, 26 ground wefts per centimetre.

Warps: dark indigo cotton, 2-ply, Z-spun.

Ground weft: black (dark indigo) cotton, single-ply, no apparent torsion.

Supplementary weft Type 1: thin, continuous floss silk in white, red, green, orange, no apparent torsion.

Supplementary weft Type 2: thick, continuous floss white (blue on diagram) silk, 4 parallel yarns, no apparent torsion.

Supplementary weft Type 3: thick, discontinuous silk floss in green, red, white, 2-ply, Z-spun.



Fig. 10 Detail of a baby carrier panel.

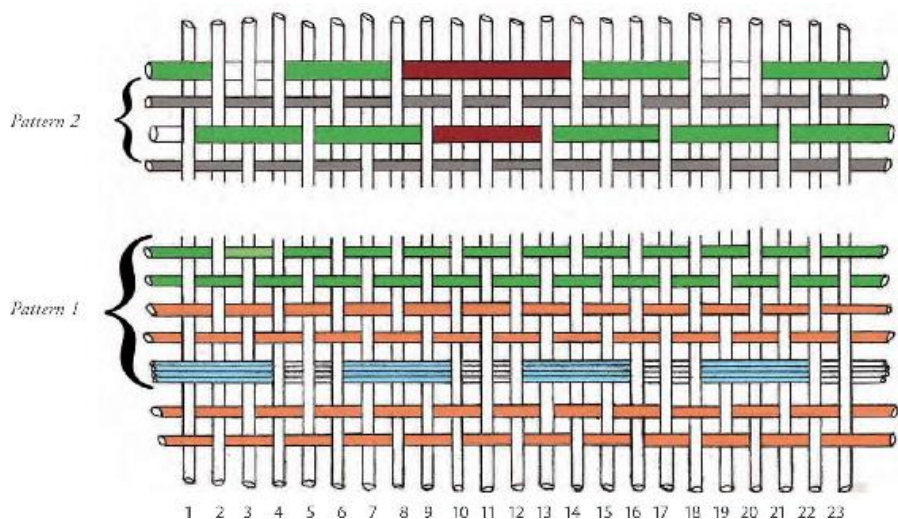


Fig. 11 Structural analysis of a brocade baby carrier.



Fig. 12 Textile analysed in Fig. 11 (Pattern 2).



Fig. 13 Textile analysed in Fig. 11, (Pattern 1).



Fig. 14 Textile analysed in Fig. 11, reverse side.



Fig. 15 Textile analysed in Fig. 11, showing Pattern 1 below and Pattern 2 above.



Fig. 16 Central panel woven for a baby carrier, 30.5 cm × 26 cm, silk and cotton, synthetic dyes, twentieth century. The motif is called a 'frog', recognisable by its pairs of eyes. The frog is associated with rain and therefore with good harvests. The central area of this panel is woven with discontinuous supplementary wefts; the four narrow bands at the borders are woven with selvedge to selvedge continuous supplementary wefts. Short lengths of supplementary weft have been added near the border at the left hand side to maintain even weft spacing and to compensate for the extra space taken up by supplementary wefts. The presence of these 'extra' wefts at the edges is an indication that a panel has been woven rather than embroidered. Private collection.



Fig. 17 Detail of Fig. 16 (front and reverse sides) showing discontinuous supplementary weft patterning.

1 Geary et al [2003, 39]: ‘The so-called Grass Miao people live today in the Southern Kam area. [...] They are officially Miao people though they speak a version of Northern Kam. At some time in the past, they probably migrated from the Northern area, and because their language was not intelligible to the local Kam people, they were classified by the locals as Miao [...] Professor Long Yaohong estimates their

population at around 50,000.’



Fig. 1 Pan Ying carrying a grandchild in an old brocaded baby carrier.

4.5 Miao weaving in Zhouxi



Fig. 2 Detail of a baby carrier panel, similar to the one that Pang Ying is wearing. Silk and cotton, natural indigo dye. The eight-pointed star motif, on the right hand side is known in the Zhouxi area as ‘wild roses’.

Qingman village, Zhouxi township, Kaili city, Guizhou province 贵州省, 凯里市, 舟溪镇, 青曼村. Surveys were conducted in March 2012, March 2013 and April 2014.

The weaver who we obtained most of our information from, Pan Ying, is in her late forties. She says she started to learn to weave brocade panels for baby carriers ‘around the age of 12’.

The type of brocade woven here is generally known as ‘Zhouxi-style brocade’. However the same weaving technique can also be found in other isolated Miao villages quite far from the Zhouxi area, such as Biteng (Biya) in the suburbs of Kaili and Gongtong near Leishan.

In 2012, Pan told us that the traditional mother-to-daughter transmission of the technique had disappeared in her village. Her own

daughter moved to the nearby city of Kaili and never showed an interest in learning to weave. On a second visit in 2013, however, we found that a 25 year old woman was learning the complex weft patterned weaving technique from Pan (Figs. 3 and 5). She told us that she hoped to earn a living by making woven baby carriers to sell to brides for their weddings. A newly woven baby carrier sells for at least 2000 RMB, the equivalent of more than a month's salary in nearby cities.

The Miao brocade woven in Zhouxi is the only example that we found during our research that is sometimes made entirely with silk, this material being used for both the warps and the wefts. As a result, this brocade, with an average thread count of 60 wefts and 23 warps per centimetre, is amongst the finest produced in the Southwest. However in some of the older brocade fragments that we examined we found white cotton used for warps and ground wefts. Yang Wenbin, a Miao scholar, believes that the use of silk threads by Zhouxi weavers, which allows for a finer texture, only started around 1900. He thinks that before that time, most brocades were woven from hemp or ramie and were thus considerably coarser.

In the past, silk yarn was produced domestically but Pan now uses commercial silk thread, though she still has in her possession a few skeins of home grown, hand spun silk yarn inherited from her mother (Fig. 13). Pan says that the traditional method of preparing the silk warps prior to weaving has now been abandoned; in order to strengthen the warps, the silk thread used to be boiled in water containing the ashes of some herbs from the mountains. Now Pang uses an alkali-based chemical instead.

According to Pan, in the past, warps and ground wefts were dyed with a light indigo preparation, which resulted in a pale green colour. Supplementary silk wefts were dyed by boiling them in a preparation made with a local tree fruit called *daodiangka* in Miao language; the yarns were then placed in water collected from rice paddies, in places where the water is covered with a reddish sheen. The result was a dark purple, almost black colour. This is an example of a dyeing technique found across much of Southeast Asia: the coloured sheen on the surface of the water indicates that the mud below is undergoing anaerobic fermentation, and contains iron in its soluble, reduced form. In this state the iron will readily complex with tannins in plant and bark dyes and produce brown and black shades. The same phenomenon is recognised by dyers in Laos, Indonesia and Hainan (for example), who use paddy field mud to make dark dyes for both silk and cotton.

Regarding traditional beliefs relating to weaving, Pan told us that

looms were supposed to be cleared of any yarns or weaving in during the first month of the lunar year. In practice, setting up a loom during this period was taboo, but a project that was already in progress could be finished.

Older weavers in the area reported that some Miao ancestral songs were dedicated specifically to brocade weaving; there were even different songs for different textiles: one for baby carriers, one for jacket sleeve panels. Unfortunately we could not find any weavers who remembered these songs.



Fig. 3 Pan's young apprentice at work on Pan's loom.



Fig. 4 The cloth beam rotation is checked by a peg.



Fig. 5 Learning warps selection while referring to an old brocade fragment.

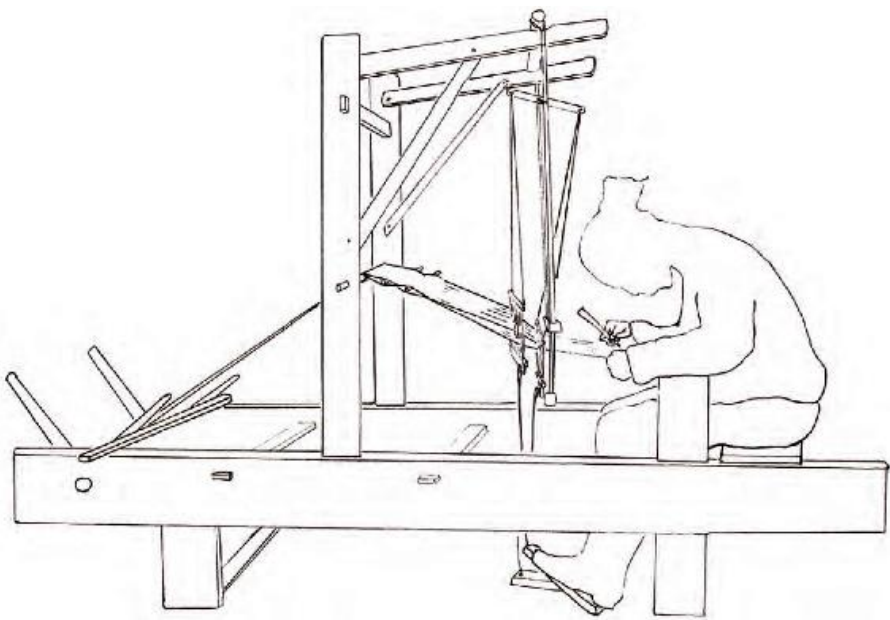


Fig. 6 Weaving on a Zhouxi loom.

Glossary of Terms

Loom: *song ah dou*

To weave: *dou*

Brocade: *douliang*

Tabby: *dou shlong*

Silk thread: *he gang*

Cotton thread: *he seng*

Warp beam: *gi yong*

Cloth beam: *jian m'hao*

Reed: *yi dou*

Heddle: *sao dou*

Treadles: *ga pa teng*

Beater: *dao we dou*

Hook: *dang he dou*

Shuttle: *nang dou*

Loom characteristics

Total number of warps: 576

Number of warps per reed space: 2

Brocade width: 21 cm (19.5 cm on another local loom)

Average brocade length: 150 cm

Wefts are 'pressed in' with flat wooden blade

They also told us that in the past, young women were expected to weave at least three or four baby carriers for their wedding trousseau. Before getting married, Pan wove six baby carrier panels, a task which, she says, took her six years to complete. Nowadays, owing to the decline in weaving skills, brides either use baby carriers inherited from their mothers or grandmothers, or they embroider new baby carriers themselves. Others purchase machine-embroidered baby carriers at the local weekly market in the nearby city of Zhouxi.



Fig. 7 The tabby ground weft is inserted with a shuttle.



Fig. 8 The continuous supplementary weft is inserted with a bobbin in the weaver's left hand; just above is the beater.



Fig. 9 Inserting a bamboo blade, opening the shed for the continuous supplementary weft.

In the past few years, a new trend is discernable as families are once again taking pride in displaying traditionally hand-woven baby carriers, even at a significant cost, which they order from the few surviving weavers of the village.

Miao brocade in Zhouxi is decorated with a rich variety of intricately woven geometric motifs. Torimaru describes 30 woven motifs in her book *Spiritual Fabric* [Torimaru 2006].

The loom

The loom used by Miao weavers in Zhouxi to weave brocade is a frame loom with a fixed cloth beam and a pair of bidirectional heddles attached to foot treadles. According to Pan, the same loom can be used to weave plain tabby or twill cloth.

One of the few groups that does not use a back-tension loom to weave brocade, the Miao in Zhouxi use a cloth beam fixed into the loom frame, with a peg to maintain the warp tension: the peg pierces the cloth beam and can be inserted into a series of slots on the right side of the loom frame (Fig. 4). This loom probably replaced an older back-tensioned loom at some time in the past.

The two rods inserted between the warps at the back of the loom near the warp beam help separate the warps and keep them in order, and prevent the brocade from becoming twisted. They do not play any other active role in the weaving, as far as we can tell.

Weaving technique

The pattern is produced by picking warps by hand, either from memory or by referring to an old fragment as a model (Fig. 5). The warp selection is done without any separation of warp layers, all warps being on the same plane.

The tabby ground warp is inserted with a shuttle. Continuous supplementary wefts are inserted with a bobbin, in a patterning shed created by the introduction of a long flat bamboo stick between the warps. One row of tabby ground weft alternates with one row of continuous supplementary weft. All wefts are continuous and are pressed-in with the help of a large, flat bamboo stick (Figs. 8 and 9).

Pan, who has been weaving brocade for over 30 years, says that she can weave one centimetre per day at most; a baby carrier panel takes her about three months to complete. This makes the Zhouxi brocade technique one of the slowest, as well as being one of the finest in terms of yarn count.



Fig. 10 (Above) Zhouxi area baby carrier, full length 700cm, brocaded panel 150 cm × 21 cm, silk and cotton, early twentieth century. (Below) detail of the brocaded panel: the pattern is composed of stylised butterflies representing 蝴蝶妈妈, 'Mother Butterfly', the mythical ancestor of the Miao people. He Haiyan collection.

Structural analysis

Analysis of an old fragment (Figs. 11 and 14). Supplementary weft compound tabby, formerly used as a baby carrier panel. Made during the 1950s. Panel is 19.5 cm wide. Thread count: 23 warps (but can be as many as 30 if silk warps are used), 60 wefts (30 ground wefts, 30 supplementary wefts) per centimetre.

Warp: off white cotton, 2-ply, S-spun.

Ground weft: off white cotton, single-ply, no apparent torsion.

Supplementary weft: purple floss silk, single-ply, no apparent torsion.



Fig. 11 Detail of fragment analysed.



Fig. 12 Detail of the reverse side of a baby carrier panel.



Fig. 13 A skein of home grown, hand spun silk which Pan inherited from her mother.

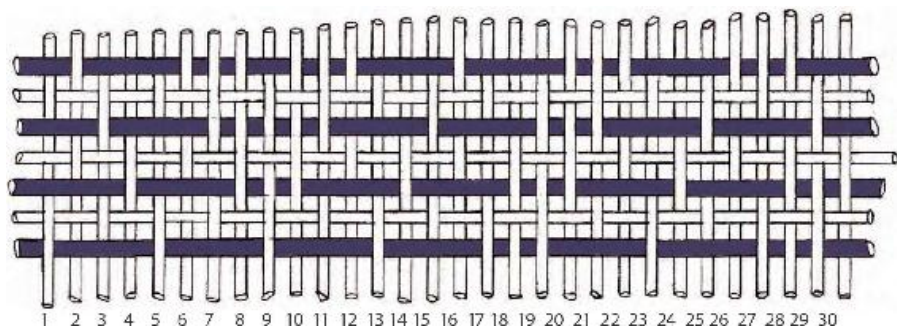


Fig. 14 Structural analysis of a baby carrier panel fragment.



Fig. 15 Brocaded panel from a baby carrier, 119 cm × 21 cm, silk and cotton, natural dyes, early twentieth century. Motifs: stylised butterflies and flowers. He Haiyan collection.



Fig. 16 Fragment of a brocaded panel from a baby carrier, 70 cm × 17 cm, silk and cotton, natural indigo dye, early twentieth century. Motifs: stylised butterflies, birds and flowers. He Haiyan collection



Fig. 1 Woman's wedding costume entirely made of hand-woven brocade, 140 cm × 100 cm, silk and cotton, synthetic dyes, mid-twentieth century. Motifs of eight-pointed stars and swastikas. The 'tails' are decorated with tassels made of rooster feathers. Private collection.

4.6 Miao weaving in Bakai

Bailai village, Bakai district, Rongjiang county, Guizhou province. 贵州省，榕江县，八开乡，摆赖村. Survey carried out in May 2013.

The village of Bakai is relatively poor and isolated and is not visited by tourists. The village consists of 30 households and was recently relocated closer to the river as part of an initiative to move high mountain villages to lower altitudes.

Most women still wear traditional costumes, decorated with hand-stitched embroidery and brocade. These seem to be worn everyday, even when the women are working in the fields. Yang Wenbin, a Miao scholar interviewed for this survey, told us that the Bakai district was only opened to foreign visitors in the late 1990s, and until recent times local Miao people maintained a nearly autarchic way of life: they were said to purchase nothing from the outside ‘except for salt’. Yang contends that people in Bakai preserve some of the most ancient Miao traditions, which are related to ancient Chu kingdom (BCE 1030–223) culture. The Miao of this village call themselves *damu* in their own language, signifying that they belong to the Hmu subgroup of the Miao people.

Two types of loom are still in use in the village, one for tabby cloth and one for brocade. There seem to be three or four of each type remaining.

Most of the information we acquired relating to weaving was provided by Wei Chunyan, who is 29 years old. She said that she learned weaving from her mother, ‘starting at the age of 13’. When we met her, Wei was weaving a headdress for her own use. She had memorized most of the patterns, though she still referred to an old textile from time to time.



Fig. 2 Bailai village, situated in a remote valley.



Fig. 3 Wei Chunyan at her loom; which she uses for both white 'textured' weaving and coloured brocade.

In addition to weaving on a frame loom, Wei also weaves belts in the traditional way, with a rudimentary frameless loom placed between her knees, and using a buffalo bone as a beater (Fig. 5).

Wei's mother told us that until the late 1990s, domestically produced

cotton and silk yarns were used to weave brocade. Wei, however, like other weavers in the village, is now using commercial yarn for both warps and wefts.

According to older weavers in the village, brides were expected to present a full trousseau, entirely made by themselves, for their weddings. The trousseau was composed of at least one costume for the bride to wear on her wedding day and a minimum of five or six more costumes and three headdresses to be presented to the groom's family. Wei's mother told us that during the first two weeks of the New Year, all yarn had to be removed from the loom and weaving was prohibited; she said that this taboo is still respected in the village.

Even though brocade weaving is still practised, villagers agreed that the mother-to-daughter transmission of this skill has almost disappeared. As mentioned, there are currently around seven active looms in the village. Wei said that other women of her age know the brocade weaving technique, but younger women go to work in the cities and are not interested in weaving, or else do not have the time. However, she added that the tradition of brides presenting a wedding trousseau is still followed: since most young women do not know how to weave brocade, they order items from older weavers. A headdress costs about RMB 100, a full costume RMB 1500.

Other villagers told us that traditional weaving also persists in surrounding villages.

Traditionally woven brocades are used for women's headdresses as well as for the central panel of baby carriers, ceremonial jackets, skirts (made of narrow woven bands), and leggings. Wei mentioned that a particular use for this type of weaving is to make a small rectangular pouch which is given during courtship by a young woman to the boy she wishes to marry. If the boy accepts the gift and keeps it for more than two weeks, it means he is willing to marry. He will return the bag to his bride after the wedding and she will use it to store her most precious jewellery.

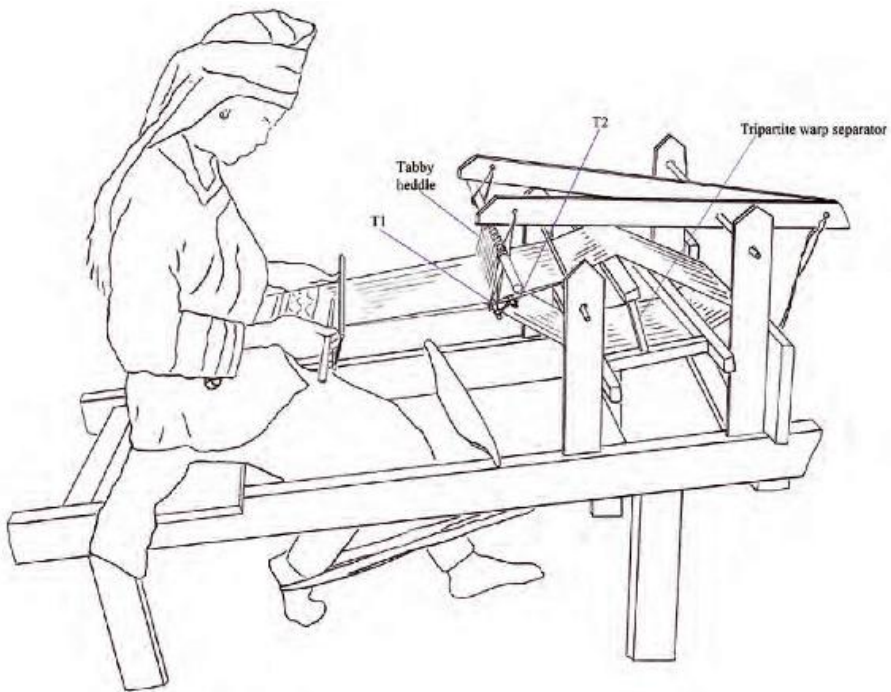


Fig. 4 Wei's brocading loom.

The loom

The Miao in Bakai weave brocade on a back-tension frame loom. There is a large tripartite frame (Figs. 3 and 4) that holds the natural shed open at the back of the loom. Three additional sticks assist the weaver to separate particular groups of warp yarns for the creation of pattern effects. One wooden stick T2 separates the upper warps layer into two sublayers (three warps over, two warps under). Another wooden stick T1 separates the leashes of the tabby weave heddle into two groups, one group of paired leashes at the back and one group of triads of leashes at the front. These two sticks are permanently installed on the loom. When needed, a third stick T3 is introduced to further separate the upper warps layers into two layers (one warp over, one warp under). The way these sticks are used is described below. This is the only instance that we have found where the leashes of the heddle used for tabby ground weave are also separated into two groups using rods, to produce a weft effect.

A flat bamboo blade is used to separate the warps before inserting discontinuous supplementary pattern wefts. A beater-shuttle is used to insert the ground wefts, which are usually white.



Fig. 5 Wei Chunyan weaving a belt on a small loom that is braced between the knees, using a piece of shaped buffalo bone as a weft beater.



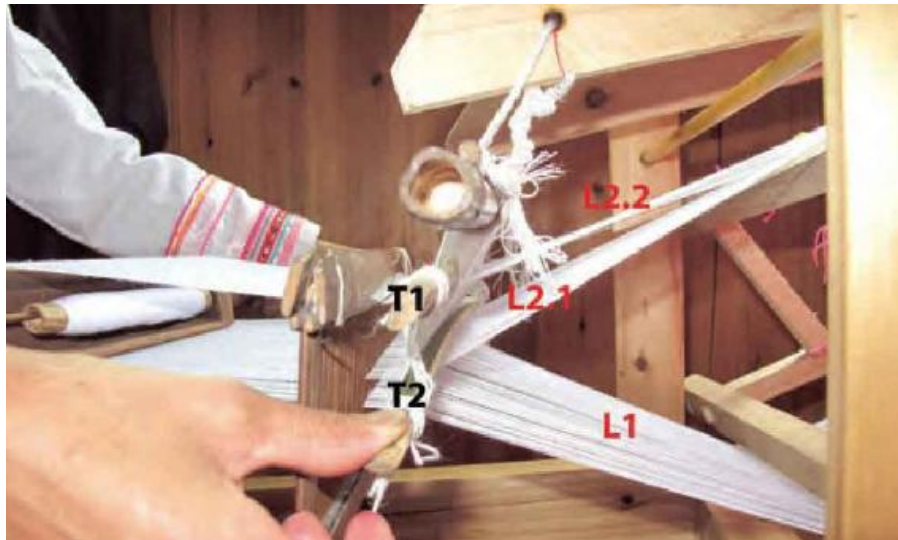


Fig. 8 White 'textured' weaving: separating L2 in two layers by pushing down tube T2, see mechanism diagram A in Fig. 10 and textile structure diagram in Fig. 7.

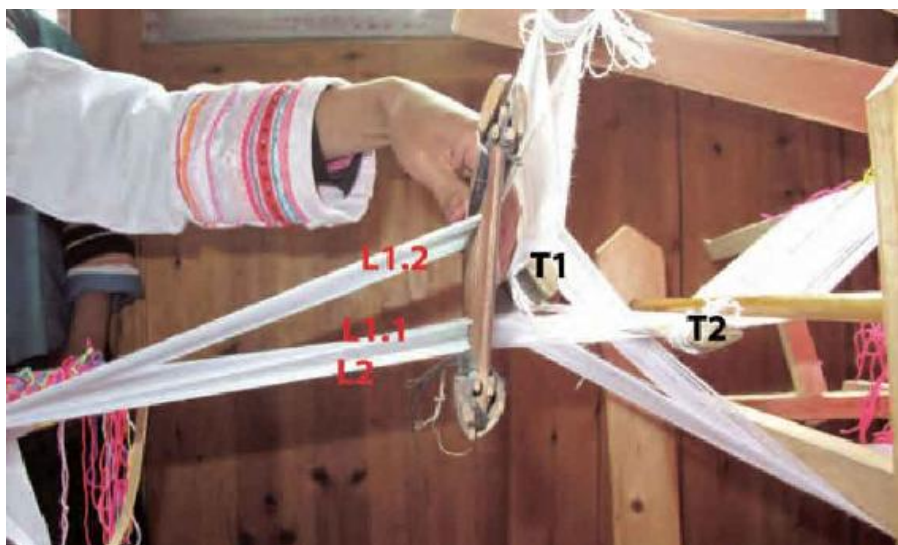


Fig. 9 White 'textured' weaving: separating L1 in two layers by separating heddle leashes with tube T1, see mechanism diagram B in Fig. 11 and textile structure diagram in Fig. 7.

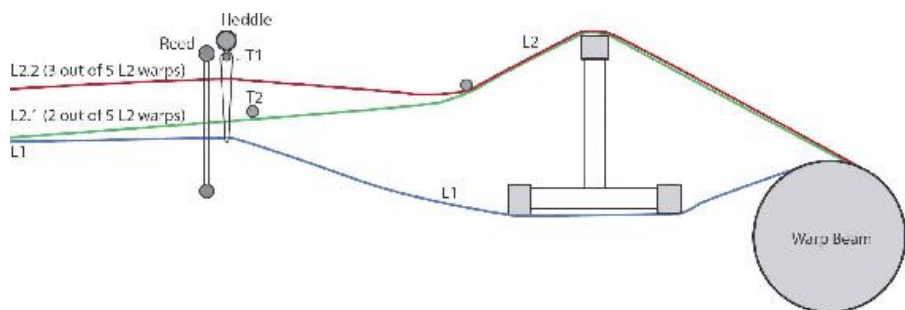


Fig. 10 White 'textured' fabric weaving method (compare Fig. 8 and structural diagram Fig. 7). This shows the shed opening for the insertion of the first set of floating wefts producing the textured effect.

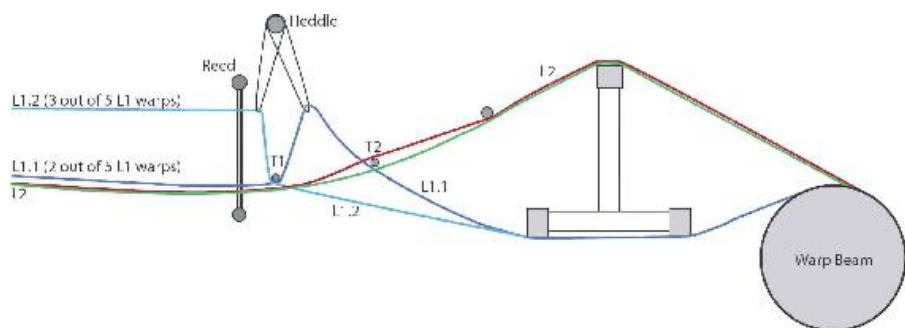


Fig. 11 This shows the shed opening for the insertion of the second set of floating wefts, producing the 'textured' effect.

Weaving technique

The Bakai loom can be used for two different techniques: for weaving 'white on white' fabric with some weft floats producing a textured effect; and for weaving polychrome brocade. In the case of headdresses, the two techniques are used alternately; for jackets or baby carrier panels only the brocade technique is used.

Note on diagrams: Stick T1 separates warp layer L1 into layers L1.1 and L1.2; stick T2 separates warp layer L2 into layers L2.1 and L2.2; stick T3 separates warp layer L2 into layers L2.3 and L2.4.

1. White textured fabric with weft patterning (Figs. 6–11, old headscarf in Fig. 20)

Two sticks, T1 (to separate heddle leashes, which in turn separate the lower warps layer L1 into two layers, L1.1 and L1.2) and T2 (to separate the upper warps layer L2 into two layers, L2.1 and L2.2) are used in order to produce weft floats over five warps. Two tabby ground wefts alternate with one floating weft.

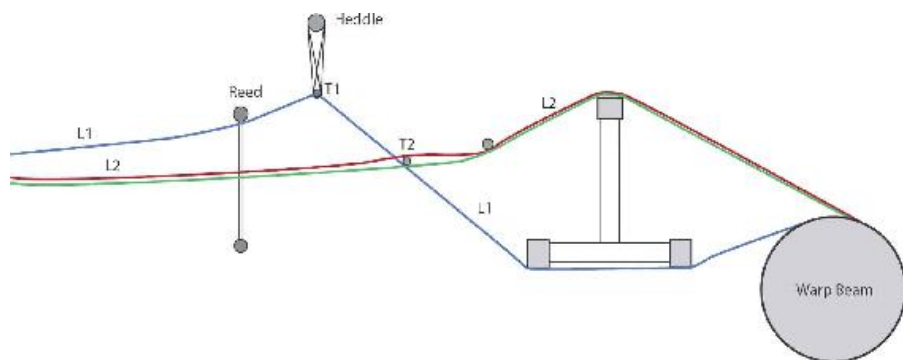


Fig. 12 Pulling up the heddle to open the tabby countershed; see Fig. 14.

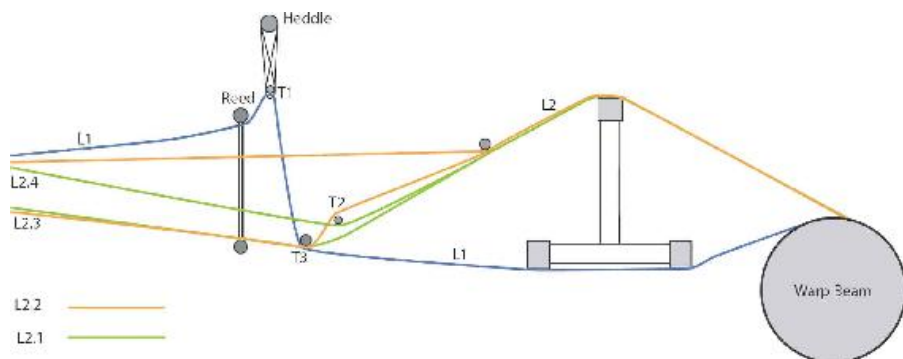


Fig. 13 Pushing down tube T3 to open a shed for the insertion of continuous supplementary wefts while weaving polychrome brocade; compare Fig. 15.

2. Polychrome brocade

For complex patterns no shed sticks are used; the weaver selects warps from the full set (the warps are not separated into different layers). Warps are selected from memory by picking them up with a flat, pointed bamboo stick, in order to create the shed where the supplementary wefts (mostly discontinuous) will be inserted. One tabby ground weft is inserted between every two rows of supplementary weft (Figs. 17 and 18).

For the insertion of the first and last few rows of continuous supplementary wefts (selvedge to selvedge), only one stick, T3, is placed between T1 and T2 (which are not used for polychrome brocade weaving) to separate the upper warps layer into two layers (one warp over T3, one under, alternatively). When T3 is inserted, it creates floats over three warps and under one warp (Figs. 13 and 15).

Note: for the sake of clarity in the diagrams, the two layers of L2 warps separated by T3 are designated as L2.3 and L2.4.

Wei says it takes her about four days to weave a headdress of total length 72 cm, including 16 to 20 cm of polychrome brocade. Most of

this time is spent on weaving the patterned sections, in which all the supplementary wefts are inserted by counting the warps by hand. She says that it only takes her a few hours to weave the white textured fabric located between the two decorated bands.



Fig. 14 Pulling up the heddle to open the tabby countershed. See mechanism diagram in Fig. 12.

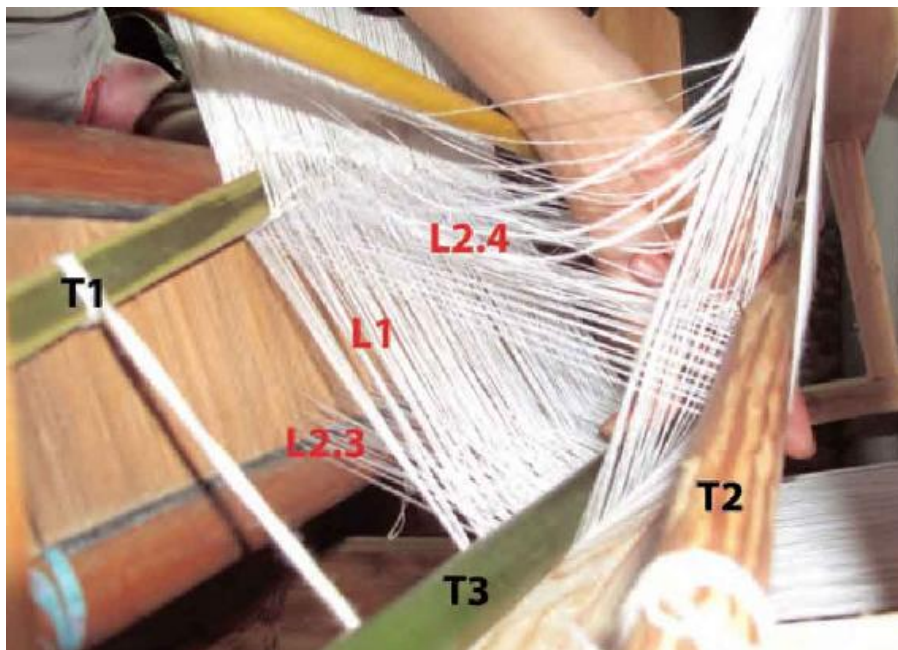


Fig. 15 Depressing the green tube T3. See mechanism diagram in Fig. 13.



Fig. 16 A bamboo blade is inserted to create the sheds where the coloured discontinuous supplementary wefts will be inserted.

Loom: *song dao*

Warp: *hao*

Weft: *hao jian*

Warp beam: *bi dao*

Cloth beam: *dao be dao*

Reed: *lie dao*

Heddle: *dao sou*

Beater: *gnia gao*

Shuttle/bobbin: *lie hao*

Brocade: *qu hua hou*

Wooden tripartite tool separating upper and lower warp layers at the back of the loom: *ma tio*

Structural Analysis

Analysis of a contemporary weaving made in 2012 (Fig. 16), intended for use as a woman's headdress. Supplementary weft compound tabby, 19 cm wide, with a pattern repeat of 3 cm. Thread count: 23 warps, 30 ground wefts per centimetre.

Warps: white nylon, 2-ply, Z-spun.

White textured section wefts: white nylon, 2-ply, Z-spun.

Polychrome patterned section wefts:

Ground wefts: white nylon, 2-ply, Z-spun

Supplementary wefts: dark indigo 'synthetic wool', 2 single-ply yarns, S-spun.



Fig. 17 Detail of headscarf polychrome section in Fig. 20

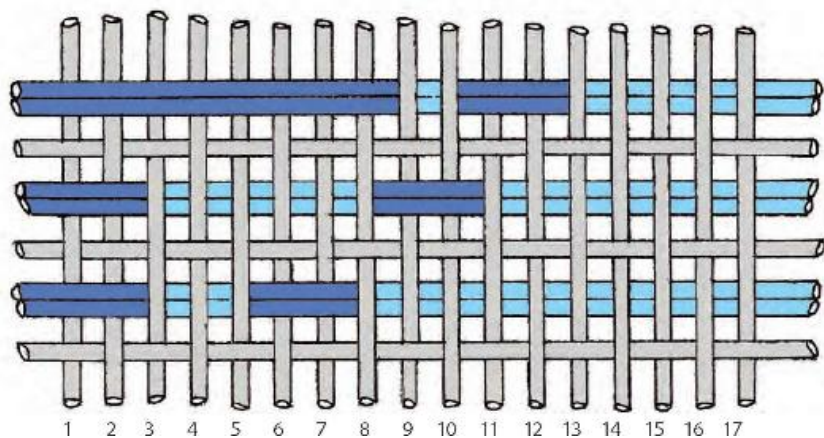


Fig. 18 Structural diagram of textile in Fig. 16, polychrome section.



Fig. 19 Detail of the jacket illustrated in Fig. 1.

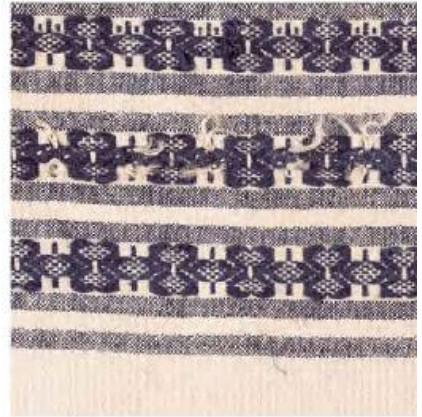


Fig. 20 (Left) Woman's headscarf, 58 cm $\times$ 20 cm. (Right) details of the front and reverse sides. The central section is woven with the white 'textured' technique; the two extremities are woven with the polychrome 'textured' technique. He Haiyan collection.



Fig. 1 Baby carrier, 450 cm × 76 cm, silk and cotton, natural and synthetic dyes, first half of the twentieth century. The pattern of confronting, stylised pairs of birds and butterflies, surrounded by flowers, is characteristic of Miao baby carriers from Geyi, however, the weaving technique for this pattern has almost disappeared and similar patterns are now made by embroidering. He Haiyan collection.

4.7 Miao weaving in Geyi



Fig. 2 Wang Yun weaving brocaded ribbons, with her mother and a baby boy, on her balcony in Nanyao.

Nanyao village, Taipan township, Taijiang county, Eastern Guizhou province. 贵州省, 台江县, 台盘镇, 南尧村.

Several visits were made to Nanyao, one in August 2006 and three in 2013.

The village, composed of 80 Miao households, is located less than one hour by car from the city of Kaili, in one of Guizhou's most prosperous areas. It is not visited by tourists but is not far from well-frequented tourist spots such as Xijiang, where Miao costumes sell well to visitors. The area where Nanyao is located is almost exclusively Miao, and the textiles and costumes produced here are locally said to belong to the 'Geyi style'. The village is composed mostly of traditional wooden Miao houses. Most of the young people of the village are working in China's industrial cities and older people make a living locally by tilling the land, supplementing their income by collecting iron ore from the tailings of a nearby mine.

Nanyao is one of several villages in the area where brocade is still

woven. Local weavers insist that their brocade style is unique and different from that of nearby Taijiang, Gedong and Shidong. This is true for their woven baby carriers, but our research in Shidong showed that silk ribbons woven there are similar to those made by Nanyao weavers.

The weaver interviewed for the survey, Zhang Degui, was 25 years old when we met her in 2006. She has a sister (aged 18 at the time) who also weaves brocade. Zhang Degui went to work in the Southern city of Shenzhen, but after saving some money she chose to return to Nanyao in order to be closer to her family and to marry one of the villagers. She did not remember how old she was when she started to learn weaving from her mother, but by the age of 18 she was able to make a full wedding costume, decorated with brocade, embroidery and appliqué, entirely by herself.



Fig. 3 Embroidered pattern sampler ('laomuhua' or 'muzihua') with typical baby carrier motifs of butterfly, confronting birds, flowers and wanzi (swastikas), 25 cm × 19 cm, silk on cotton. He Haiyan collection.



Figs. 4 Detail (above) of baby carrier illustrated in Fig. 31. (Below) reverse side of the same textile.



Fig. 5 Detail of an embroidered sampler (called 'laomuhua' or 'muzihua') showing the 'horse' pattern unit (circled in red).

In 2013 we interviewed Wang Yun, aged 40, who started to learn weaving from her mother, directly on the loom, at the age of 16. When we met her, she was in the process of weaving a sleeve panel for a new festival jacket for her mother, who was 70 years old.

According to Zhang, interviewed in 2006, many young women in the village and surrounding area weave brocade, and during festivals they compete to determine who has made the most beautiful and intricate costume. She also mentioned that several young women in their early

teens were already well known for their talent as brocade weavers. In her home there were two brocade looms, both made by her father, age 63 years: he said that any villager could easily make a loom frame in 'less than a day's work'. Another young weaver from the village, already married, said that she was weaving some jacket sleeve panels for her own use, with a design that she called '21 horses' (Figs. 5 and 6) that she hoped would be judged the most beautiful during a local festival. She added that she wanted to produce this kind of intricate jacket while she was still young as she feared she would not be able to do it when she was older, since the work requires keen eyesight.

In 2006 several women in the area told us that they had recently abandoned domestic silk and cotton production, finding it too time-consuming, and preferred to use their spare time to collect mine tailings. Zhang was still using the cotton yarn produced by her mother; she said this was better than commercial cotton yarns for the warps and the ground wefts. She was also using the last silk yarns from her mother's domestic production for the supplementary wefts, which she said were dyed at home with synthetic dyes bought on the local market. Her mother said that she stopped growing and spinning cotton two years earlier, so the following year Zhang would have to switch to using commercial cotton for her warps.



Fig. 6 Woven pattern based on the embroidered model in Fig. 5, with the horse pattern unit (yellow ellipse).

Wang told us in 2013 that she uses commercial yarn for her warps, which she says is made of cotton blended with synthetic material, the best for durability, fineness and 'sliding'. She says that silk was still produced domestically in almost every household until the 1980s, but now only one or two families in the village are able to do so, and they do not do it every year. Wang says that copper coloured silk wefts, which are the most popular, are either bought ready-dyed from shops

or at the local market, or are dyed at home with a chemical powder called *jia shla* bought at the local weekly market.

Zhang told us in 2006 that she never learned to use natural vegetable dyes, but her mother, 60 years old, knew how to obtain a yellow pigment from the seeds of *huangzhi* (*Gardenia jasmenoides*). She no longer did it because she found it too time-consuming.

In 2006 ten to fifteen brocade looms were in use in the village; in 2013 the number was about the same but most of the weavers were over 50 years of age.

Wang's mother told us that local Geyi-style brocade was mostly used for baby carrier panels (a long horizontal panel and a shorter vertical one sewn together (Figs. 1, 30, 31), as well as for ribbons. The ribbons were made by an unusual method: strips about 40 cm long (corresponding to the width of the woven brocade) were cut from woven cloth, each strip being about 1.5 to 3 cm wide (Fig. 8). These were then sewn end to end and used to decorate the hems and sleeves of jackets and the borders of baby carriers. She added that nowadays most local brocade weaving is devoted to making ribbons and jacket sleeve panels: very few baby carriers are produced. We were shown one 'woven' baby carrier that was in fact embroidered to look like woven work.

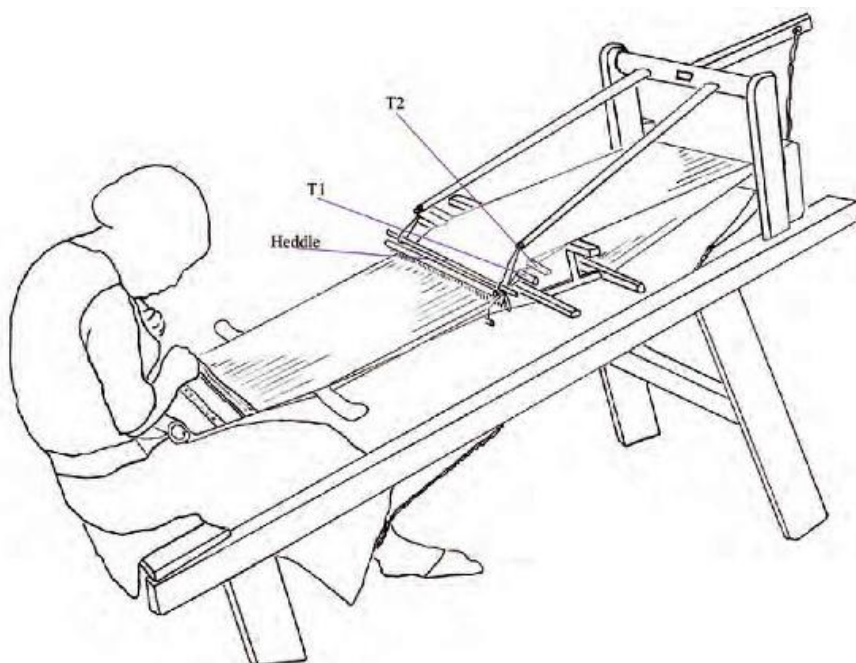


Fig. 7 Wang's loom in Nanyao. A cord attached to the weaver's foot (instead of a treadle) raises the heddle by activating the V-shaped levers. This apparently rudimentary loom allows a remarkable variety of complex weave structures.

Zhang told us that, according to tradition, a young woman produced at least five or six wedding jackets, fully decorated with hand-woven brocaded ribbons, silk knotted stitch embroidery and silk appliqué. One woman we met in the village was preparing only two jackets for her own wedding. Other young women in the village claimed that they were content with only one *jiayi* (jacket for everyday use) decorated with brocaded sleeve panels. An older weaver told us that in the past tradition required mothers to offer two brocaded baby carriers to their daughters as a wedding present.

Zhang noted that young women who left the village to work in factories and returned to the village to marry in the village often ordered jackets for their weddings from young women who remained behind and learned the techniques; she considered this ‘a pity’.

The most common patterns seen on Geyi baby carriers are stylized butterflies, phoenix and flowers; although Wang said that few weavers know how to weave these motifs today. Some weavers stated that these motifs were still woven in the 1980s, but that the technique had gradually been lost, and neither Zhang nor her mother could weave them. The weavings being produced at the time of our survey had only relatively simple geometric motifs on ribbons and panels for jacket sleeves.



Fig. 8 Newly woven brocaded ribbons. The straws separate the ribbon sections and indicate where they will be cut to be separated. The sections will then be sewn end to end along garment borders, collars and hems.



Fig. 9 Tubes T1 and T2, placed behind the heddle, separate the natural tabby shed's upper layer L2 in to two sublayers.

Except for the 'horse' motif, which is used to demonstrate the quality of a weaver's work (a minimum of eight 'horses' is required, although the finest weavings include up to 21 horses), Zhang had no idea about the names or meanings of the patterns that she wove.

The loom

The Geyi loom is a back-tension frame loom with one heddle for tabby weave. The heddle is raised by two levers pulled by a cord attached to the foot of the weaver.

A 'two tubes and three warp layers' mechanism is used both for the direct insertion of continuous supplementary wefts into the shed opened by this mechanism, and to help the weaver when selecting warps by hand. The Tubes-and-Layers system is mostly used with the heddle in the raised position (warp layer L1 up). Two bamboo tubes, T1 and T2 (Figs. 7, 9), separate the upper warps layer L2 into two layers L2.1 and L2.2 (alternating: one warp under T2 and over T1 forming layer L2.2; one warp above T2 and under T1, forming layer L2.1).

Discontinuous supplementary pattern wefts are inserted by hand after counting and separating the warps with a metal hook (Fig. 23).

Loom characteristics

Total number of warps: 732

Number of warps per reed space: 2

Brocade width: 40 cm

Reed: 10 teeth per centimetre

Wefts are beaten-in with a wooden beater

Although the loom appears rudimentary, Geyi weavers are able to produce at least four or five different weave structures using it, by varying the positions of the tubes (T1 and T2).

A heavy wooden beater is used to beat in the wefts; all wefts are inserted with the aid of bobbins.



Fig. 10 Opening the natural tabby shed. The weaver applies tension to the warps by leaning backwards.

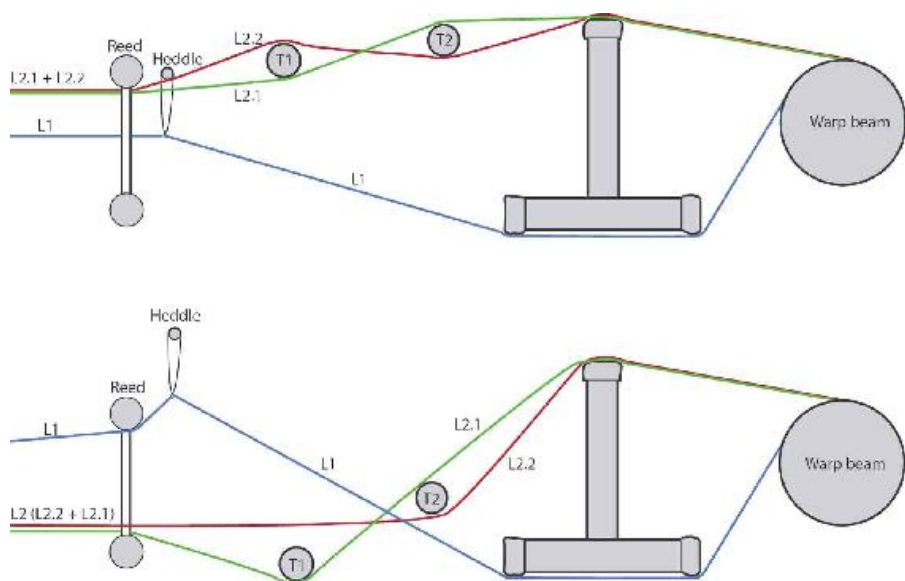


Fig. 11 Loom mechanism: (above) opening the natural tabby shed. (Below) opening the tabby countershed by raising the heddle.



Fig. 12 Raising the heddle to open the tabby countershed. Pulling the cord with her right foot, the weaver raises the heddle.



Fig. 13 Detail of Fig. 30. The black background is composed of silk supplementary wefts; this feature is useful when attempting to distinguish a woven Geyi baby carrier from an embroidered carrier, in which the ground consists of tabby cloth.

Weaving technique

The reverse side of the brocade faces up while on the loom.

An embroidered sampler known as *laomuhua* 老母花 or *muzihua* 母子花 ('mother's pattern') (Figs. 3 and 5) is used to help the weaver recall the number of warps over or under which the supplementary wefts have to float. The motifs on the *laomuhua* are embroidered with the precise number of picks needed for the weaving. In order to make counting easier, the sampler is made of tabby cloth woven with thick white yarns. Wang uses a *laomuhua* with a length of 21 'horses', which constitutes half of the pattern repeat. When she reaches the end of it, she reverses the *laomuhua* and weaves the other half of the pattern, yielding a reflection symmetry, with the axis of symmetry along the weft direction.

The following technical description concerns the weaving of ribbons. The brocading technique used to weave baby carrier panels is probably slightly different, but we could not find any active weaver who was able to demonstrate it for us.

1. Tabby

When weaving ribbons and sleeve panels, apart from being used for the ground wefts, the tabby heddle is sometimes used to weave a tabby structure at the beginning and the end of the weaving. On baby carrier panels, tabby structures can be seen at the extremities and

sometimes along the edges. The background to the motifs, however, is not woven in tabby, it is composed of dark silk supplementary wefts (Fig. 13). The two sheds for weft insertion are opened as follows:

Natural shed (Figs. 10 and 11): two tubes T1 & T2 are raised (layer L2 up), heddle (layer L1) is lowered.

Countershed (Figs. 11 and 12): the weaver pushes the two tubes T1 and T2 down with the beater while lifting up the heddle with the foot strap. Layer L2 is 'down', layer L1 is in the 'up' position.



Fig. 14 Pushing down tube T1 in order to weave Reps1 (die gong).

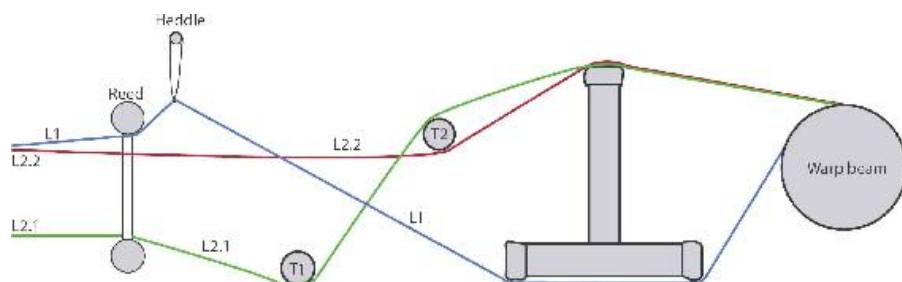


Fig. 15 Loom mechanism corresponding to Fig. 15.



Fig. 16 Following the action in Fig. 14, tube T1 is released while the shed is maintained by the beater.

2. Reps (*die gong, hi he sa*)

Miao weavers in Geyi produce two types of reps weave. According to Irene Emery [1966, 87] both of these types of weave should be called ‘warp-wise ribbing’, we use the term ‘reps’ here for brevity. The two types are Reps1 (*die gong*) and Reps2 (*hi he sa*).

2.1 Reps1 (*die gong*): there are two variations, Reps1a & Reps1b. This is the most frequently seen reps weave woven by the Miao of Geyi. Weaving Reps1 uses the tabby heddle and the tube T1 alternately; the tube T2 is not used. Three layers of warps are involved.

Reps1a and Reps1b have the same basic structure (Figs. 26 and 27) and are produced with the same technique. The weaver alternates the insertions of one tabby weft and one reps weft; all the wefts are continuous (they run from selvedge to selvedge). In Reps1a, both wefts are made of thick silk floss. In Reps1b, the tabby weft is thin and dark brown; the reps weft is thicker and made of silk floss.

In order to show clearly that the warp L2.2 is never picked in Reps1a structure, the structure diagram (Fig. 27) shows the reverse side of the brocade.

The tabby weft is always inserted in the natural shed. The continuous reps weft is inserted in the shed between L2.2 and L1 at the top, and L2.1 at the bottom (the reverse side of the brocade faces up on the loom). To accomplish this, the heddle is raised to its maximum height, the weaver leans forward to release the warp tension; tube T1, is pushed down by hand or using the beater as a lever, (Figs. 14 and 17), then towards the back of the loom. This movement opens a shed within the upper warps layer of the natural tabby shed (L2.1 down,

L2.2 up): this shed is held open by inserting the beater, and the Reps1 weft is inserted into it.

2.2 Reps2 (*hi he sa*). This technique is being used less frequently; Wang had to ask her 72-year-old mother to show her how to do it. Weaving Reps2 uses the tabby heddle and tube T2 alternately; three layers of warps are involved. Two types of wefts are used:

The first type of weft that is used is a ground weft of thin black silk that is always inserted in the tabby countershed (L1 up, L2 down). This is the method of inserting ground wefts that was demonstrated by Wang, but on other Geyi fragments, our analysis shows that one out of every two 'ground wefts' is inserted in a different shed: L1 + L2.2 up and L2.1 down (Figs. 15 and 16). The other 'ground weft' is inserted, Wang told us, in the tabby countershed (L1 up, L2 down).

The second type of weft that is used is discontinuous supplementary weft, consisting of thick, coloured floss (red, green, blue, white), inserted between L2.2 + L1 down and L2.1 up. For this purpose, two successive actions are required. First, while the heddle is raised, T2 is pushed down by hand or with the extremity of the beater (Figs. 17 and 21), then the beater is inserted to maintain a first shed between L2.2 down and L1 + L2.1 up. Next, a blade is introduced to create a second shed between L1 (which is now a middle layer) and L2.1, which becomes the upper layer, and the heddle is lowered (Figs. 18 and 22). The discontinuous supplementary weft is inserted in the second (upper) shed created by the blade (L2.1 up, L1 and L2.2 down) (Figs. 19 and 20). The length of the discontinuous wefts varies according to the design; in the case of the fragment that we analysed each coloured discontinuous weft goes under four L2.1 warps (Fig. 27).

3. Patterning (*ga diong pu*)

The structure diagram (Fig. 26) shows the face of the brocade from a fragment that was not woven by Wang; the patterning technique differs slightly because the patterning wefts forming the background (blue in the diagram) are not continuous. Wang's patterning technique, which includes continuous supplementary wefts, is described in the following sections. This type of patterning is applied to the central part of the ribbons, usually between several rows of reps and tabby weave located at the edges. One tabby weft alternates with one row of patterning supplementary wefts.

3.1 Tabby ground wefts. The continuous thin silk yarn monochrome tabby wefts of the patterned section of the brocade are always inserted in the natural shed with a bobbin.

3.2 Supplementary wefts. There are two kinds. The first kind are discontinuous coloured supplementary wefts, which compose the individual motifs (red in Fig. 26).



Fig. 17 Tube T2 is pushed down in order to weave Reps2. See mechanism diagram on Fig. 21.



Fig. 18 Following the movement seen on Fig. 17, the beater and a wooden blade keep the sheds open. See mechanism diagram in Fig. 22.



Fig. 19 Insertion of Repts2 coloured wefts.



Fig. 20 Repts2 wefts have been inserted in the upper shed opened by the blade.

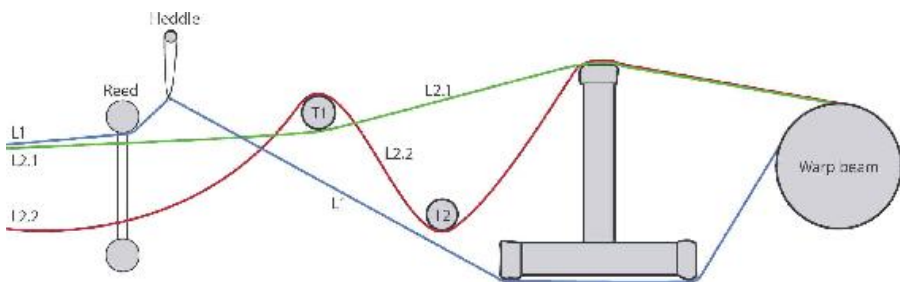


Fig. 21 Loom mechanism corresponding to Fig. 17.

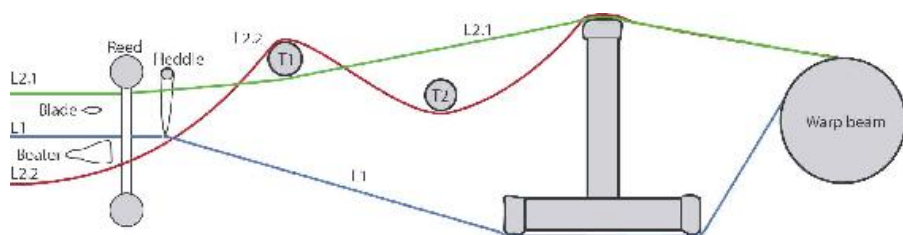


Fig. 22 Loom mechanism corresponding to Fig. 18.

These are inserted by hand, with the help of a metal hook (Fig. 23). They are made of silk yarns of different colours. They are inserted after picking the warps with the hook from the entire range of the warps, with no regard for warps layers. At the same time, a long thin wooden blade (Fig. 24) is inserted in a shed that is complementary to the path of insertion of the discontinuous supplementary weft.

The second type of weft is continuous monochrome supplementary wefts that are inserted in the complementary path opened by the long wooden blade. Thus they float on the reverse of the brocade when a discontinuous supplementary weft forms an individual motif. They are made of thick silk yarn (bronze colour in Fig. 25). As can be seen in Fig. 26, some weavers replace the continuous supplementary wefts with discontinuous supplementary wefts.

As should be apparent by now, this is one of the most complex and time-consuming techniques practised by weavers in Southwest China. Wang said that it took her two days to weave one and a half centimetres of ribbon; other weavers said it took them one day to complete the same length. They do not count in centimetres but rather in terms of 'horses', the stylized horse being the smallest unit of the motif. The insertion of the discontinuous supplementary wefts is by far the slowest part of the process as the weaver has to count the number of warps on the embroidered sample and to insert the bamboo stick for every weft. It takes Wang about 15 minutes to insert a single row of discontinuous supplementary wefts across the full width of the fabric.

Glossary of Terms

Loom: *song po*

Warp: *da shla*

Weft: *feu kuo* or *feu gang shla*

Thick copper silk weft: *feu mie*

Thin copper silk weft: *feu ba*

Warp beam: *ba duo*

Cloth beam: *ba* (pronounced in a lower tone than for warp beam) *duo*

Shuttle: *lie fu*

Comb/reed: *ya duo*

Sword/beater: *ngang pu*

Back strap: *ba duo*

Shedding tube: *qiang kang*

Brocade: *pu xi*

Tripartite wooden tool separating warps at the back of the loom: *ma tong*

Heddle: *sha duo*

Hook: *jiu xin pu*

Curved bamboo that maintains transverse tension of completed brocade: *tang pu*

Flat bamboo stick that separates the upper two warp layers: *cheng pu*

Reps1: *die gong*

Reps2: *hi he sa*

Patterned section of textile: *ga diong pu*

Continuous supplementary weft, copper color silk: *feu gang shla*

Cotton weft (dark indigo, used for tabby): *feu kuo*

Sampler: *ben pu*



Fig. 23 Wang refers to her mother's sampler while inserting the discontinuous supplementary wefts with a metal hook.



Fig. 24 At the same time as the discontinuous supplementary wefts are inserted, a long thin wooden blade is inserted to open the shed for the continuous supplementary weft.

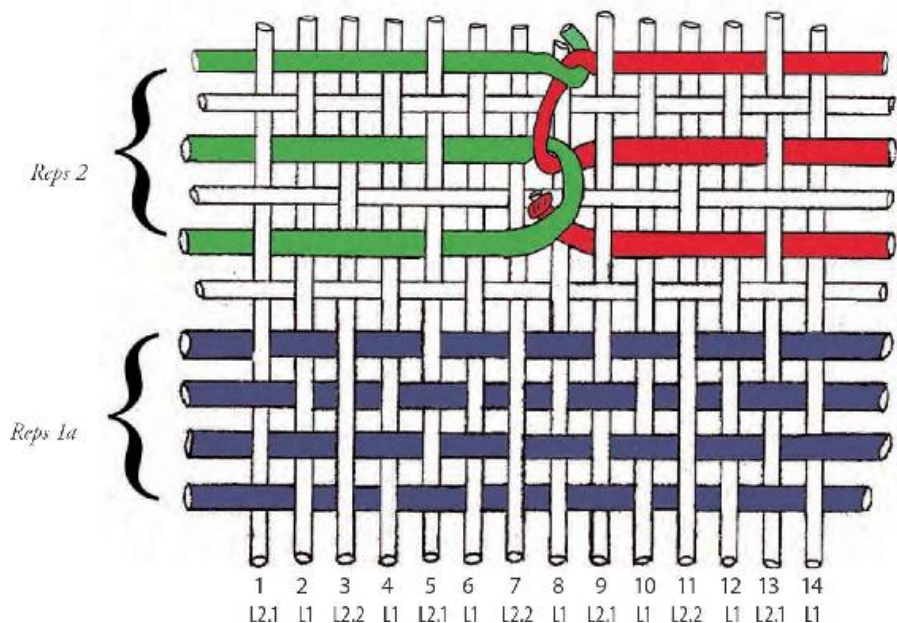


Fig. 27 Weave structures of Repts1a and Repts2, seen from the reverse side of the weaving. The warps sublayers labels (L2.1, L2.2) correspond to those marked on the loom mechanism diagrams (Figs. 12, 16, 21, 22).



Fig. 28 Woman's festive jacket, width 111 cm, height 102 cm, cotton and silk, mid twentieth century. The sleeves and collar are decorated with silk brocade ribbons (See Fig. 8), combined with embroidered and appliquéd silks. He Haiyan collection.

Structural analysis

Supplementary weft compound tabby, used as ribbons to decorate garments. 40cm wide. Mid twentieth century.

Thread count: 20 warps, 40 wefts per centimetre (20 ground wefts, 20 supplementary wefts).

Warps: black cotton, 2-ply, S-spun.

Patterned section

Tabby ground wefts: dark copper coloured silk, single-ply, Z-spun.

Supplementary wefts: silk in red, white, green and blue colours, 2-ply, Z-spun.

Reps sections

Tabby ground weft of dark brown silk, single-ply, no apparent torsion.

Reps 1a and Reps 1b: continuous wefts of silk floss (mostly blue, sometimes red, black or white), single-ply, no apparent torsion.

Reps 2: discontinuous coloured wefts of thick floss silk in red, green, blue, white, 2-ply, Z-spun.



Fig. 29 Detail of the brocaded ribbon decorating the sleeve of the jacket in Fig. 28, with weave structures marked.



Fig. 30 (Above) baby carrier silk and cotton, natural and synthetic dyes, early twentieth century. An outstanding Geyi Miao baby carrier, decorated with confronting butterflies and flowers, with two unusual extensions of the woven pattern in an 'opened out' format on the left and right sides of the upper panel. The edges are decorated with hand stitched silk embroidery, including motifs of stylised Chinese shou characters (meaning 'longevity') and flowers, as well as hand-woven silk ribbons. Below: detail of brocaded part. He Haiyan collection.



Fig. 31 Baby carrier composed of two brocaded panels: upper panel 71 cm × 37 cm, lower panel 35 cm × 37 cm, silk and cotton, natural and synthetic dyes, first half of the twentieth century. The two brocaded panels are decorated with classic Geyi Miao patterns of stylised butterflies and confronting birds, surrounded by flowers. The edges are finished with hand silk embroidery (motifs of spirals, butterflies and flowers) outlined with couched white silk, as well as hand-woven silk ribbons. Private collection.



Fig. 32 Child's jacket, 75 cm × 52 cm, decorated with hand-woven silk and cotton

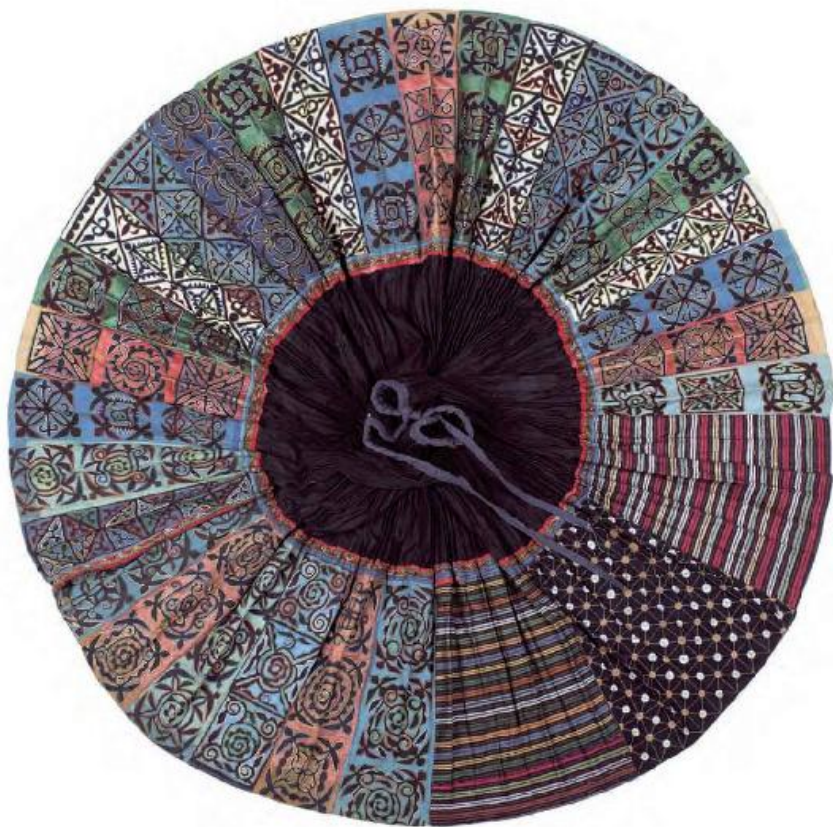


Fig. 1 Burial skirt made by Miao people in Huishui county. Most of this skirt is decorated with appliqué silk and cotton, with two brocade woven panels (striped) in the lower right quadrant, flanking an embroidered panel, diameter 125 cm. Silk and cotton, early twentieth century. He Haiyan collection.

4.8 Miao weaving in Huishui



Fig. 2 Wu's daughter at her loom.

Yarong village, Baijin township, Huishui county, South Central Guizhou province. 贵州省，惠水县，摆金镇，鸭绒村. Surveys conducted in August 2012 and February 2013.

Yarong village is rather poor and remote, and is seldom visited by tourists. It is composed of 56 households. Three weavers were interviewed for this survey: Tang Jingwei is 48 years old; she started to learn brocade weaving at the age of ten, from her grand-mother. She was able to weave the different patterns unaided 'by the time she reached the age of 15'. Wu Li, 'in her sixties' and her daughter, 'in her forties', are also actively weaving brocade and say that they find it a source of satisfaction.

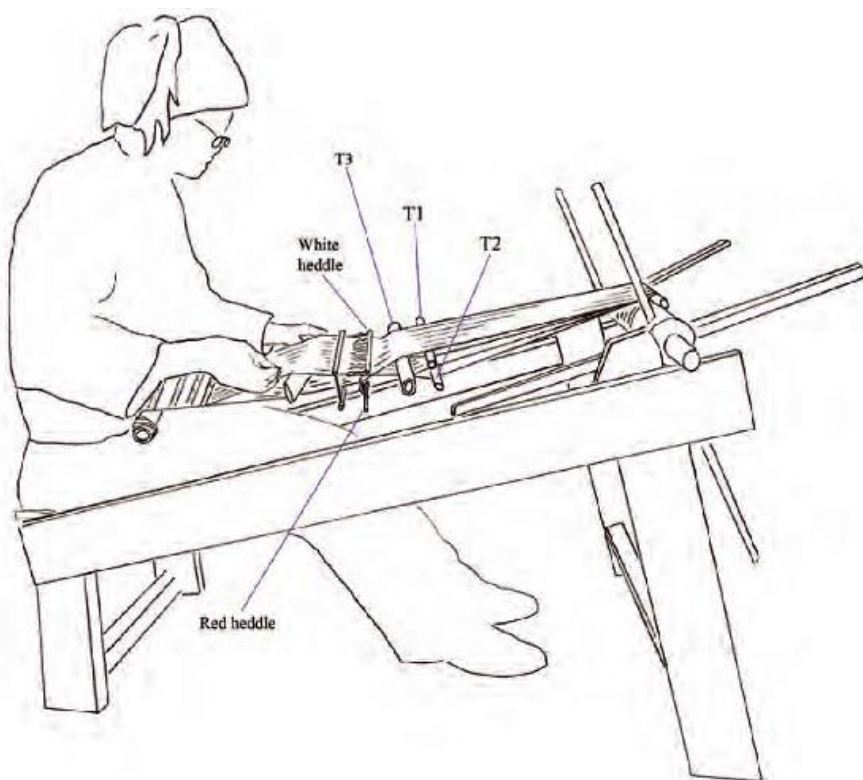
Thirty years ago every household in Yarong had a brocade loom. Today, Wu says that about a dozen households are still weaving

brocade, mainly middle-aged and older women. Young women are no longer learning to weave. The use of commercial yarn is now the norm: warps and ground weft are made of dark indigo cotton; coloured supplementary wefts are made of commercial silk.

Wu says that the first lunar month was traditionally devoted to teaching brocade weaving to young women.

Both Tang and Wu told us that brocade was used for the central panels of baby carriers and for a ceremonial woman's skirt that is worn by the deceased.² All the weavers we observed were making funeral skirt panels, none were weaving baby carrier panels, a tradition which has almost disappeared. Weavers who we interviewed said that it was more difficult and time-consuming to weave baby carrier panels.

After visiting several villages in the area, it became apparent that nowadays brocade is almost exclusively used for funerary purposes. Women spend long hours on one of the most primitive and painstaking looms in the region in order to produce panels decorating skirts and jackets that they will only wear after their death. When asked about the purpose of this custom, no weaver was able or inclined to answer.



Wu's daughter told us that for her burial, a woman will usually wear at least three skirts, woven and appliquéd by herself, as well as four sets of upper garments. Wealthier women, or women who have more time for weaving, may wear five, seven, nine or eleven costumes. In contrast to most other Miao groups, who are usually buried in simple white hemp fabric, women in Yarong are buried in silk and cotton clothing with elaborate designs. The brocade panel only serves to decorate a minor part of the funeral skirt, the rest being adorned with appliquéd cotton fabric and sometimes indigo batik.

The loom

The back-tension oblique loom used by the Miao weavers of Huishui is one of the most archaic-looking and rudimentary looms in use among the weaving groups in Southwest China. It is the only frame loom out of 21 types studied for this book that is not equipped with a mechanical system to raise the heddles. Both heddles have to be pulled up by hand to open the countershed (Fig. 9). Despite its simple design, however, this loom allows the warps to be separated into four different layers thanks to the use of a three-tubes version of the Tubes-and-Layers system, placed behind the heddles.

Loom characteristics

Total number of warps: 404

Number of warps per reed space: 1

Brocade width: 38 cm

Wefts beaten-in with a beater

A flat wooden blade is used both for beating the wefts in, and for opening a wider shed by turning it on its side. All of the continuous wefts are inserted using shuttles.

Weaving technique

The reverse side of the brocade faces up while on the loom.

Tang Jingwei says she knew the warp counts for the designs by heart when she was young, but now, as her memory is failing, she often uses an old brocade fragment as a model. She inherited this fragment from her mother-in-law (Fig. 10). Wu and her daughter weave all their

designs exclusively from memory. As there are no assisting mechanical devices, all the actions required for brocade weaving are done with the fingers: pulling up or pulling down the heddles, selecting and picking warps, and inserting the discontinuous supplementary wefts.



Fig. 4 Wu Li in her courtyard, weaving a burial skirt panel.



Fig. 5 A neighbour displaying an old baby carrier panel.



Fig. 6 The Tubes-and-Layers system mounted on the loom (see diagrams on the following pages).



Fig. 7 Tang Jingwei showing a panel she has woven for her burial skirt.



Fig. 8 Wu's daughter (left), displaying a finished burial skirt.

In the following explanations and diagrams, L1 designates the upper warps layer of the natural tabby shed, which can be pulled down by the red heddle bar (L1 goes above the big tube T3). L2 corresponds to the lower warps layer of the natural tabby shed, which can be lifted up by the white heddle bar (L2 goes under the big tube T3). T1 and T2, the two smaller tubes, are helpers for the insertion of coloured supplementary wefts. T1 separates the L1 warps layer into L1.1 (two warps out of three) above it and L1.2 (one warp out of three) under it. T2 separates the L2 warps layer into L2.1 (two warps out of three) above and L2.2 (one warp out of three) under it (Fig. 6). The colours of the heddles used in our descriptions and diagrams reflect the actual colours of the heddle leashes on the loom: presumably they are colour-coded on the loom for the same reason that we colour-code the diagrams, to make them easier to distinguish.

T3, the bigger tube, creates a natural tabby shed: it goes under the warps L1 (which can be pulled down by the red heddle bar) and above the warps L2 (which can be lifted up by the white heddle bar). It creates a tabby shed which is the opposite of the one created by

pulling the white heddle up and the red heddle down.

1. Tabby weft insertion

The tabby shed openings (natural or countersheds) are used for the insertion of the tabby ground wefts (dark indigo cotton thread) as well as some continuous coloured supplementary wefts. The natural tabby shed is opened by pulling tube T3 forward against the reed: the heddles and tubes T1 and T2 are inactive in this position (Fig 12). The tabby countershed is opened by pulling down the red heddle with one hand and pulling up the white heddle with the other hand (Figs. 9 and 13). The tabby shed opening is enlarged and kept in place by the beater, which is placed on its edge in front of the reed, between L1 and L2. Tabby ground wefts are inserted with a shuttle and beaten-in with the beater.

2. Supplementary weft insertion

Continuous supplementary wefts are inserted with a boatshaped shuttle. Discontinuous supplementary wefts are inserted by hand, using pre-cut lengths of yarn. Warps are selected and picked up by hand either while the warps layers are separated by the two tubes mechanism, or from all the warps in the case of complex patterns.

3. Using the 'Three Tubes-Three Layers' mechanism

The heddles are inactive when using this system; the natural shed is held open by T3.



Fig. 9 Wu Li opening the tabby countershed, pulling the heddles by hand as there are no treadles mechanical aids for raising heddles on this loom.



Fig. 10 Tang Jingwei counting the warps on an old fragment which she uses as a model; the shed opened by the Tubes-and-Layers system serves as a counting aid.



Fig. 11 Inserting discontinuous supplementary wefts by hand.

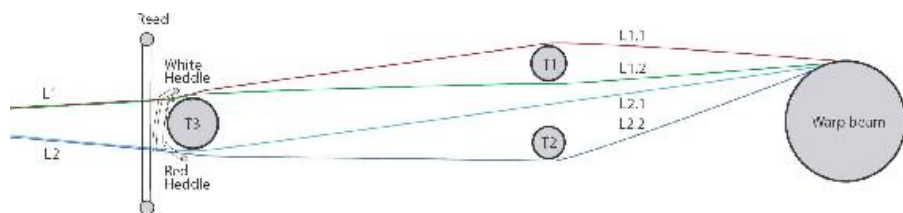


Fig. 12 Loom mechanism showing the opening of the natural tabby shed.

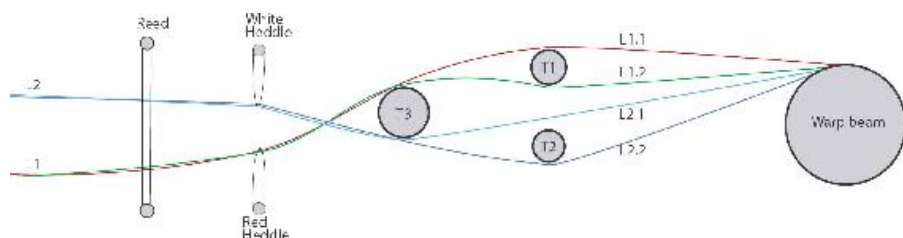


Fig. 13 Loom mechanism showing the opening of the tabby countershed.

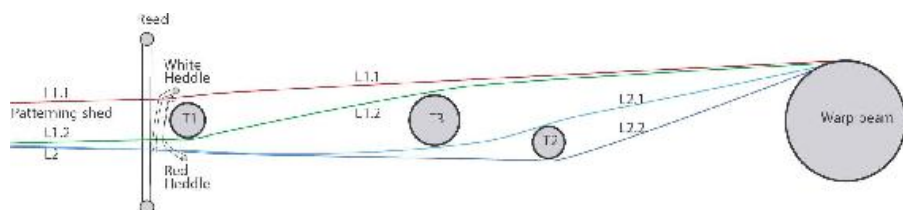


Fig. 14 Loom mechanism showing the use of the Tubes-and-Layers system.

Example of the process with T1 (upper tube): T1 is moved from the back to a position in front of T3 and pulled against the reed, thereby opening an upper shed separating L1.1 and L1.2 (Fig. 14). A long, thin bamboo stick is introduced into this shed, in front of the reed. This shed opening is created in order to separate the warps into layers (the upper layer is composed of groups of two warps). This shed has two functions: the weaver uses it to help select warps by hand in order to insert some discontinuous supplementary wefts; and she uses it 'as-is' to insert some of the continuous supplementary wefts with a shuttle.

4. Insertion of supplementary wefts for complex patterns

Discontinuous supplementary wefts can also be inserted without using the Tubes-and-Layers system. In this case, the wefts are inserted by hand following the model provided by an old brocade fragment; whilst she is doing this, the weaver inserts a long, thin wooden blade in a path complementary to the path of insertion of the discontinuous supplementary wefts (Figs. 15 and 16). A continuous supplementary weft will be inserted in the shed created by the blade.

This method of weaving is slow and tiring; when applying complex motifs, Tang weaves just one to two centimetres of cloth per day.



Fig. 15 Wu inserting a wooden blade to open a shed for the insertion of a continuous supplementary weft.



Fig. 16 Detail of Fig. 15 The blade is inserted in a shed complementary to the position of the discontinuous supplementary wefts.



Fig. 17 Part of the fragment analysed in Fig. 18.

Structural analysis

Supplementary weft compound tabby for use as burial skirt decoration, made in 2012. Panel is 38 cm wide. Thread count: 20 wefts, 12 warps per centimetre.

Warps: black cotton, 2-ply, S-spun.

Wefts: Type 1: black (dark indigo) cotton, single-ply, Z-spun.

Wefts Type 2: floss silk in red, green, white, orange, and blue.

Internal construction

There are few actual ‘tabby ground wefts’: the dark cotton wefts which could play this role rarely follow a tabby weave path, which explains why the fabric feels loose, lacking in density.

Glossary of Terms

Loom: *zang dao die*

Warp beam: *gen dao*

Warp: *haklou*

Supplementary weft: *sao jiu*

Pattern: *da kai*

Brocade: *ga dong die*

Shuttle: *ngong*

Beater: *jiu jia*

Heddle: *ba zong*

Reed: *ra (ja)*

Cloth beam: *da long dao*

Bamboo flat blade (used to pick the warps): *jiu hai*

Bobbin/reel: *lie*

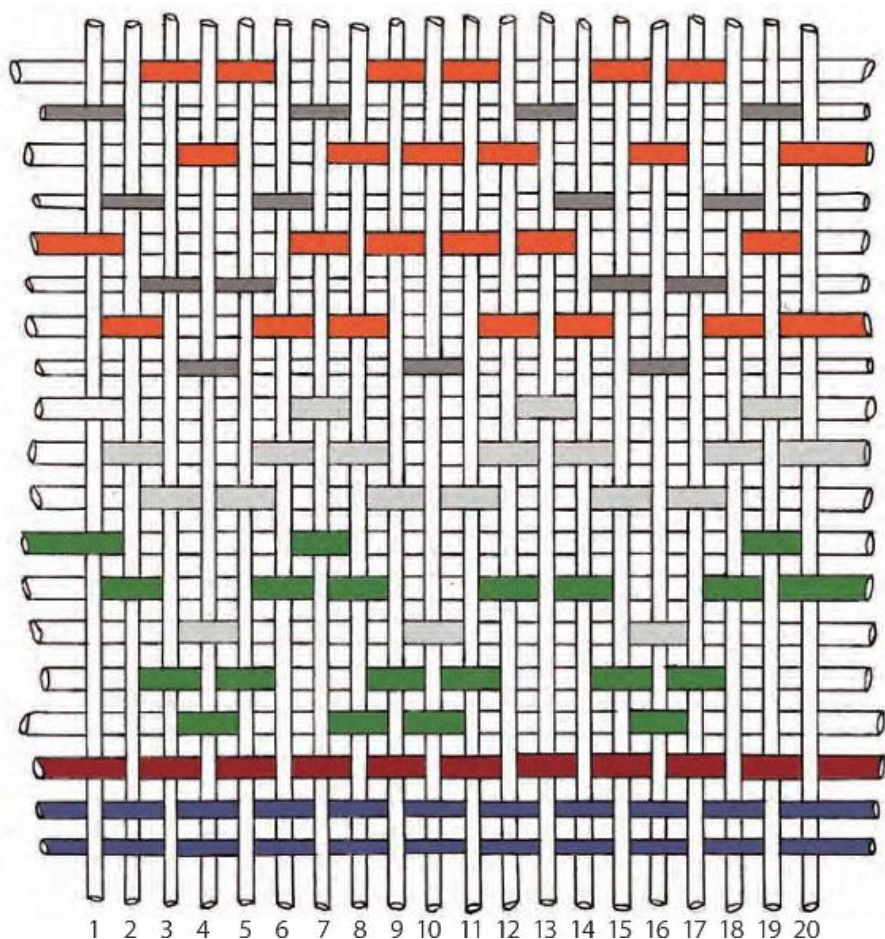


Fig. 18 Structural analysis of brocade fragment in Fig. 17.



Fig. 19 Detail of brocade panel on skirt illustrated in Fig. 1.



Fig. 20 Burial skirt decorated with appliqué and batik, and two brocade panels (striped) in the lower half. Diameter 110 cm, silk and cotton, natural indigo dye, nineteenth century. He Haiyan collection.



Fig. 21 Burial skirt decorated with appliqué, with two brocade woven panels in the lower right quadrant. Diameter 115 cm, silk and cotton, early twentieth century. He Haiyan collection.

1 Textiles from the Huishui area (known as Nanningzhou 南宁州 in the Song dynasty), decorated with reserve dye technique (*gulinbu* 谷蔴布, or *fengxiangran* 枫香染) were mentioned as tributes to the Song court (information provided by Yang Wenbin).

2 For example, regulations concerning burial clothing according to rank are mentioned in *Book Two (The Zhang Gong)* of the *Record of Rites* [Langford 2009, 184].



Fig. 1 Central panel of a wedding apron, 64 cm × 31.5 cm, silk and cotton, synthetic dyes, first half of the twentieth century. The rich iconography of Miao wedding aprons in the Shidong area is unique amongst minority brocades in Southwest China: the motifs reflect traditional legends, interpreted in individual ways by the weavers and populated by

a bestiary of both mythical and real animals, as well as human figures, often transformed by metamorphosis. He Haiyan collection.

4.9 Miao weaving in Shidong

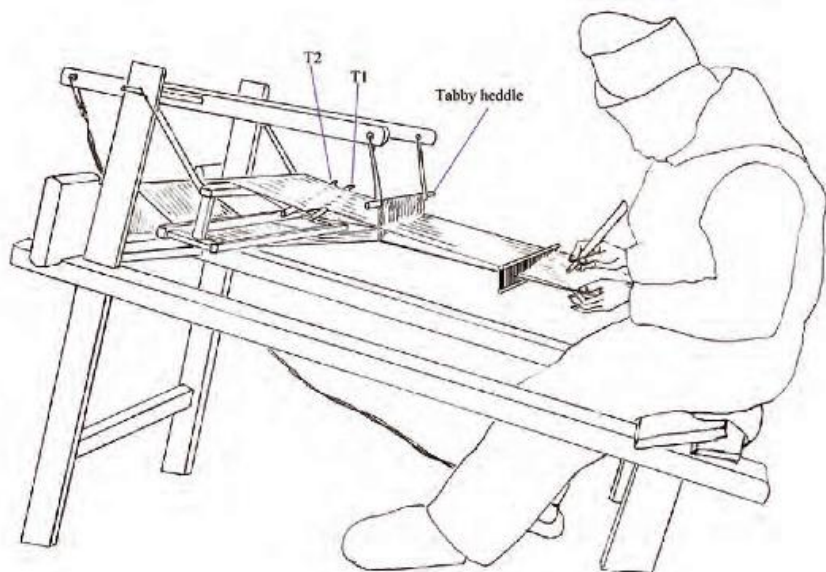


Fig. 2 Zhang Shengying at her loom.

Maopo village, Taijiang county in East Guizhou province. 贵州省，台江县，猫坡村. Surveyed in April 2013.

Kaili city, East Guizhou province. 贵州省，凯里市. Surveyed in February 2012.

Although Maopo village belongs administratively to Taijiang county, its textile traditions belong to the Shidong Miao culture.

The status of traditional brocade weaving in Shidong is exceptional amongst the ethnic groups of Southwest China, in that there is perhaps more brocade weaving taking place now than at any time in the past. This has come about without government subsidies or outside encouragement. Indeed in 2013, whole villages in the Shidong area were devoted to this cottage industry. In Maopo village it has also become an important economic activity and is probably the major source of revenue for most households. Several households have two brocade looms in active use.

A large majority of the young women from Miao villages and cities have chosen an urban way of life, and many of them work as *mingong*

(migrant workers) in the coastal towns in East and South China. They never learned how to weave, considering this activity a waste of time. Yet these young women, and particularly their families, still consider it essential to celebrate a traditional Miao wedding ceremony in their village of origin, which necessitates the presentation by the bride to the groom's family of several full sets of traditional garments, the more the better. This has created an opportunity for Shidong's skilled weavers.

Another factor that seems to have contributed to this 'revival' is that Shidong is home to a number of Miao people who made their fortune in the 1990s and early 2000s by trading in ethnic costumes and textiles. Their heightened awareness of their own traditions seems to have played a role in rekindling local pride in traditional textiles. These factors are now supporting a weaving revival in this area.

The weavers we interviewed told us that a traditional Shidong Miao wedding costume requires a pair of hand-woven brocaded aprons, one apron worn at the front, the other at the back. In order to 'give face' to herself and her family, a minimum of four full costumes should be presented by the bride at the wedding. In practice, however, some poorer families can only afford two sets of costumes, while rich families provide the bride with seven, nine or 11 sets.

The village of Maopo is rather isolated, accessible only via a dangerous seven kilometre unsurfaced road, about one hour from the nearest small town. It is entirely populated by Miao, and most women over 40 are still wearing 'Shidong style' traditional costumes in daily life, or at least the hand-woven silk headdress typical of the Shidong area.

Maopo weavers said that their monthly income for local weavers is at least 3,000 RMB but can be as much as 5,000 or 6,000 RMB, which is more than a migrant worker can earn by working in a coastal factory.

Two weavers were interviewed for this survey. Zhang Litian, who was 'about 60' in 2012, lives in Maopo village. She told us that it takes her about 20 days, weaving ten hours a day, to produce one apron panel. She started to learn brocade weaving at the age of 15, by studying a sampler embroidered in black and coloured silk yarns on a white cotton ground (her mother spent 'at least ten days' to embroider it); this type of sampler is called *laomuhua* 老母花 or *muzihua* 母子花 and the pattern is embroidered in flat satin stitches which float over exactly the same number of warps as in the brocaded pattern (Figs. 4 and 5). Zhang has memorized the patterns now and does not need to refer to a sampler in order to weave. Other women in the village need the *laomuhua* as a reference while weaving.

Zhang Shengying, 60, originally from the village of Jindongtang near Shidong, has now settled in the large city of Kaili where she weaves in her apartment. She started to learn weaving at the age of 13 and is now working full time as a weaver of aprons, producing one pair of aprons per month. She told us that in former times, young women were only able to weave part-time as they had to attend to domestic and agricultural chores, and would typically produce only two pairs of aprons per year.

Zhang sells her weavings to families with a daughter who is about to get married: typical orders are for two to four pairs of aprons.



Fig. 3 Detail of a woman's wedding apron. The concept of metamorphosis between animals, plants and human beings, is the source of a limitless world of chimaeric creatures such as the human-headed animals on the upper row of this weaving.

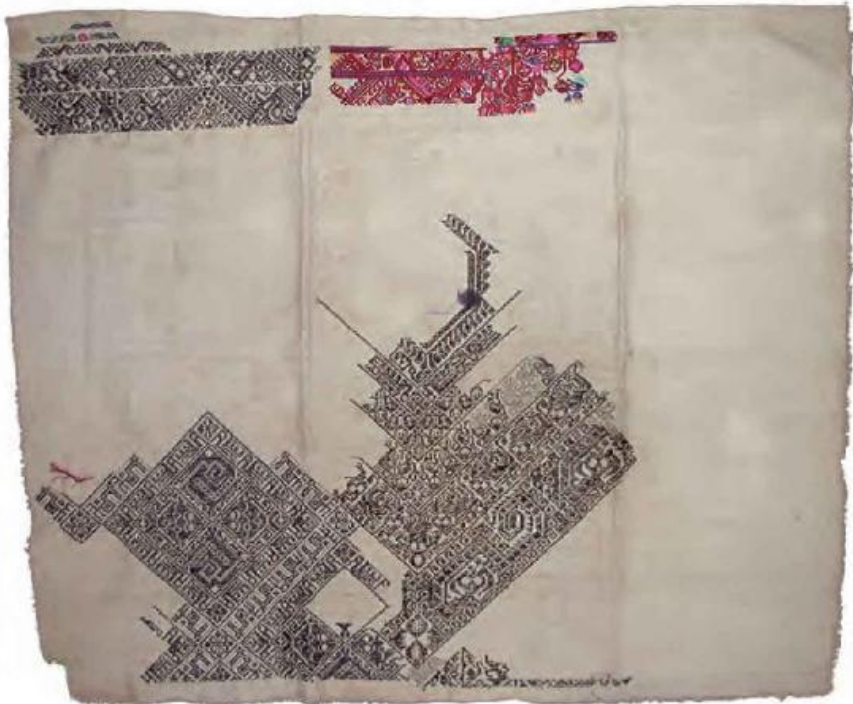


Fig. 4 Brocade patterns embroidered on a laomuhua (mother's pattern) sampler, with a ground of coarse cotton fabric. This allows the weaver to count the number of warps she will have to pick in order to weave the chosen motif. Only the key parts of the motifs appear, as the rest of the pattern will be created by symmetry and repetition.



Fig. 5 Zhang refers to a laomuhua sampler while weaving.

Loom characteristics

Total number of warps: 634

Number of warps per reed space: 2

Brocade width: 34 to 40 cm

Wefts are beaten-in with a wooden beater

Zhang sells a pair of aprons for 2,800 RMB, which constitutes a relatively good salary for a rural weaver, especially as ‘the customer provides all the warp and weft yarns’. Zhang has so many orders that she is considering raising her prices. She considers the type of weaving she does to be characteristic of the Miao living in an area which includes Shidong and Gedong (but not nearby Taijiang, she insists).

Motifs

Shidong brocaded aprons are decorated with the most extensive iconographic bestiary of all ethnic groups weaving brocade in Southwest China; a multitude of vivid and colourful animals, real and imaginary, stylized in geometric forms, often in an apparent state of metamorphosis, between animals and plants, insects and human beings, with numerous references to Miao mythology. This is rather exceptional as most other groups (except for the Tujia and the Maonan living on the fringes of Guizhou) tend to weave a smaller range of mainly abstract geometric motifs.

Zhang says that in the past warps were made of domestically produced cotton, treated by boiling in a rice starch solution in order to give the yarn greater strength and smoothness. Ideally all the wefts were made of domestically produced silk yarn, but cotton yarns were commonly used for ground wefts. Nowadays warp yarns are made of commercial cotton, which is valued for its strength and does not require treatment with rice starch. All the wefts are commercially made silk, including the ground weft.

Zhang told us that according to tradition, warps cannot be set up on the loom during the first lunar month (正月), but if a weaving has already been started, it can be continued. Pregnant women and women whose newborns are under 40 days old may not weave. When a new-born reaches 40 days old, the mother is said to be allowed to ‘eat duck’ (from the child’s birthday until that day she was only

allowed to eat chicken and fish, not duck or beef) and to weave.

The loom

The Miao loom in Shidong is a back-tension frame loom with one tabby heddle, raised by two levers pulled by a cord attached to the weaver's foot.

The Shidong loom has the same basic form and design as the Geyi Miao loom, and the Shidong Miao women can weave the same types of ribbons as described in the chapter on Miao Geyi weaving. However, Shidong Miao weavers use their looms mainly to produce apron panels, the technique for which is described below.

A 'two tubes-three warp layers' mechanism is used in Shidong brocaded aprons for the insertion of some continuous supplementary wefts, but only for some plain narrow sections located at the two extremities of the apron panel, and not for patterning on the main central section of the panel. Continuous and discontinuous supplementary pattern wefts are inserted through the totality of the warps (with no regard for any warp layers), selecting warps exclusively by hand and eye, using a long, thin and sharp wooden stick to count and separate the warps.

Two bamboo tubes T1 and T2 separate the upper warps layer L2 into two layers L2.1 and L2.2 (alternating: one warp under T2 and over T1 belonging to layer L2.2; one warp above T2 and under T1, belonging to layer L2.1). When the warps are separated into three layers using the two tubes, the heddle is always in the raised position (L1 up). Although rudimentary in appearance, this loom is able to produce at least four to five types of weave, thanks to the various combinations of the tubes T1 and T2.

A heavy wooden beater is used to beat in the wefts. Ground wefts are inserted with a shuttle; continuous supplementary wefts are inserted using a bobbin.

When new warps are set up on the loom there is sufficient length to produce about 60 aprons, at a cost of 600 to 700 RMB for the warp yarns.

Weaving technique

For technical diagrams, refer to the 'Miao weaving in Geyi', Section 4.7. The reverse side of the brocade faces up when mounted on the loom.

An embroidered sampler, called a *laomuhua* or *muzihua*, is used by the weaver to help remember the number of warps over or under which the supplementary wefts float. The motifs in the sampler are

embroidered with the same number of warp picks required for the weaving. In order to make the warp counts clearly visible, the samplers are made of tabby cloth composed of thick white yarns.

Supplementary wefts are inserted by means of a long, flat wooden 'knife' about 1 cm wide.



Fig. 6 Opening the natural tabby shed.



Fig. 7 Opening the tabby countershed.



Fig. 8 Pushing down T1 to open a shed between two L2 sublayers.



Fig. 9 Pushing down T2 to open a shed between two L2 sublayers.



Fig. 10 Zhang inserts discontinuous supplementary wefts with her left hand while placing the wooden blade in position with her right hand.

1. Tabby ground weave

This is used at the beginning and the end of the weaving and in some parts of the central patterned section, between brocaded motifs. The tabby wefts are inserted with a shuttle. On the patterned section of the apron panel, two rows of tabby ground wefts (one in natural shed, one in countershed) are inserted between rows of patterning supplementary wefts. This is different from the ribbons and sleeve panels woven by the Miao in the Geyi area, where only one row of tabby ground weft is inserted between rows of patterning supplementary wefts.

Natural shed (Fig. 6): two tubes T1 & T2 are up (warps layer L2 up), tabby heddle (layer L1) is down.

Countershed (Fig. 7): the weaver pushes the two tubes T1 and T2 down with the beater while pulling up the heddle with the cord around her foot; warps layer L2 is down, layer L1 is up.

2. Insertion of supplementary wefts with the Tubes-and-Layers system

The Tubes-and-Layers system, which separates warps in two layers, one of three warps and one of a single warp, is only used to produce a ribbed effect (reps) between sections decorated with complex patterns which are entirely picked out by hand (Fig. 14).

Tubes T1 and T2 can be lowered by hand or with the beater acting as

a lever; thereby separating the upper warps layer L2 into two warps sublayers. (Figs. 8 and 9)

Glossary of Terms

Loom: *song qiu ba* (*qiu ba*: apron)

Warp: *de qiu*

Red supplementary weft: *hong xin*

White cotton ground tabby weft: *wang beiqiu*

Cloth beam: *dang dou jiang qiu ba*

Back-strap: *la du ba*

Bobbin: *gang dao geng ho*

Tubes (shedding helpers): *shliang kang*

Heddle: *la sou*

Beater/sword: *ngiang*

Shuttle: *diang niang you*

Warp beam: *ba*

V-shaped arms: *bong dai*

Heddle pulling cord: *shsa shsao*

Flat bamboo stick: *dang jiu de* (*jiu*: needle)

Wooden hook: *dang jiu la*

Twill cotton fabric with lozenge design: *ling de* (unbeaten); *ling pa* (beaten and calendared)

Ribbon (hand-woven silk, same as Geyi, for collars and sleeves): *bang*

3. Insertion of supplementary wefts by hand:

Discontinuous coloured supplementary wefts made of silk yarn, which compose the individual motifs (pale green in Fig. 12), are inserted by hand, sometimes with the help of a bamboo blade. To determine the paths of these wefts, the weaver often refers to a *laomuhua* sampler. The wefts are inserted after picking warps from the totality of the warps, with no regard for layers. At the same time, a long thin wooden blade is inserted in a shed that is complimentary to the path of insertion of the discontinuous supplementary weft (Fig. 10). A continuous monochrome supplementary weft is then inserted with a bobbin into this complimentary path, so that it floats on the reverse of the brocade when a discontinuous supplementary weft appears on the

face of the brocade. These continuous supplementary wefts are made of thick silk yarn (bronze colour in Fig. 12).

Some weavers use a different technique, in which the continuous supplementary wefts appear on the face of the brocade and form some of the individual motifs (black yarns in Fig. 11).

As most supplementary wefts are inserted by hand without the help of the 'two tubes' system, this type of brocade weaving is relatively time-consuming. Most weavers can complete between three and five centimetres per day.

Structural analysis

Supplementary weft compound tabby, used for the central panel of a wedding apron (Fig. 11) from the first half of the twentieth century. Panel is 34 cm wide. Thread count: 17 warps, 19 wefts (13 ground wefts, 6 supplementary wefts) per centimetre.

Warps: black cotton, single-ply, no torsion.

Ground weft: grey (probably originally purple) cotton, single-ply, slight S-twist.

Supplementary weft 1: black cotton, 4 to 7 parallel yarns comprising one weft.

Supplementary weft 2: floss silk in green, white, orange, purple, 2-ply, no torsion.



Fig. 11 Detail of the front (above) and reverse (below) of the weaving in Fig. 16.



Fig. 12 (Left) detail of Fig. 11, analysed in Fig. 13. (Right) reverse side.

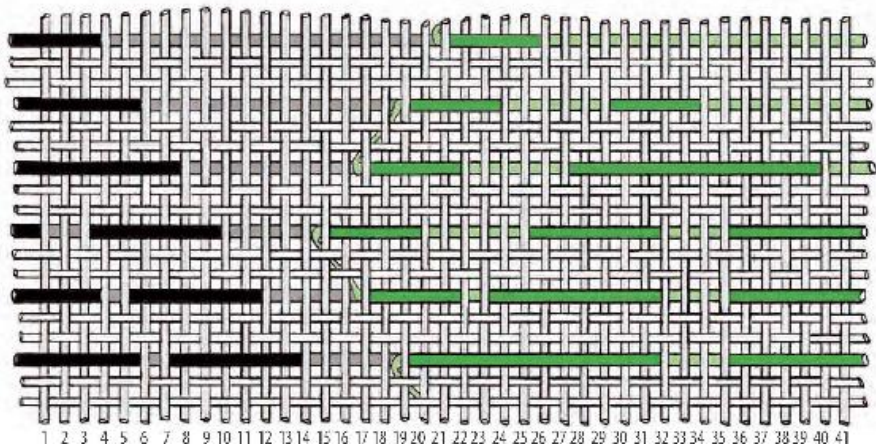


Fig. 13 Structural analysis diagram of a wedding apron.



Fig. 14 Detail of a woman's wedding apron showing the ribbed effect (Reps1 as described in the 'Miao weaving in Geyi' Section 4.7) between the rows of individual motifs (human figures riding horses while handling triangular flags) brocaded by hand.



Fig. 15 Woman's wedding apron, 67 cm × 31 cm, silk and cotton, synthetic dyes, first half of the twentieth century. Motifs of dragons, ducks, butterflies, fish, flowers. He Haiyan collection.



Fig. 16 Central panel of a woman's wedding apron, 65 cm × 32 cm, silk and cotton, first half of the twentieth century. A masterpiece of tessellating composition with colours that allow clear visualisation of the numerous components. Surrounding the central snake-dragon (resembling the Naga motifs of Southeast Asia) are ducks of various sizes. A

traditional Miao song about the origins of the world mentions the assistance given by the duck which was able to help with the casting of the 'celestial pillar' by diving deep into the waters: '鴨子是好漢,下河把路引'. The duck is also considered a symbol of marital fidelity in China. Starting at the hem, the first row contains two stylised butterflies and scrolling motifs resembling Chinese jade carvings; the second row, a pair of fish separated by a stylised 'shou' (longevity) character; the third row six ducks around a central butterfly. He Haiyan collection.

4.10 Miao weaving in Huangping



Fig. 1 Miao child's garment, Huangping area, 58 cm × 32 cm (entire textile), natural and synthetic dyes, early part of the twentieth century. The lower brocaded panel (worn over the shoulders and the back) is decorated with eight-pointed star motifs; The upper (front) panel is decorated with hand stitched silk embroidery. He Haiyan collection.



Fig. 2 Miao baby carrier, Huangping area, 76 cm × 51 cm (entire textile), natural and synthetic dyes, mid-twentieth century. The two central brocaded panels are bordered by hand-woven brocaded ribbons (woven in a technique similar to that described in the 'Miao weaving in Geyi' Section 4.7, with stylised butterfly motif), embroidery and batik. He Haiyan collection.

4.11 Miao weaving in Liuhe

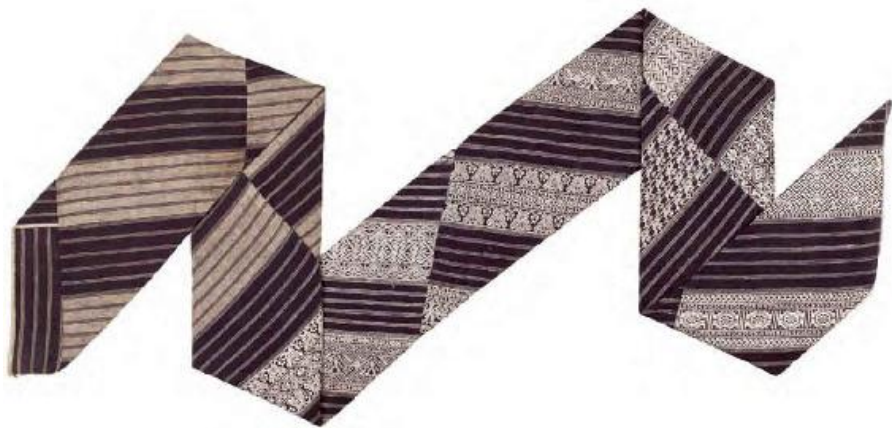


Fig. 1 a belt from the Liuhe area (六合 Southeast Guizhou), 247 cm × 18 cm, silk and cotton, indigo dye, nineteenth century. Above: detail. Below: entire belt. Worn during special events, this belt is decorated with a motif of stylised butterflies as well as an eight-hook abstract motif (which can be seen on the last band at the right-hand end of the belt), known locally as a representation of a frog. He Haiyan collection.

4.12 Miao weaving in Biasha



Fig. 1 (Right) a banner, hung from trees during festivals, 203 cm × 31 cm, hemp or ramie, natural dyes. (Above) detail of the front face of the banner. (Below) detail of the reverse side. He Haiyan collection.

4.13 Miao weaving in Qiandongnan



Fig. 1 Miao child's garment, from the Qiandongnan area in Southeast Guizhou, 98 cm × 50 cm, silk and cotton, natural and synthetic dyes, early part of the twentieth century. The main motif (four crossing lines forming a lozenge) is locally described as the 'well', considered as the 'dragons' abode' and a source of water and life. The motif on the upper parts of the shoulders, 'women holding hands' is meant to protect the child from danger, evil and pestilence. He Haiyan collection.



Fig. 2 Miao child's garment, from the Qiandongnan area in Southeast Guizhou, 75 cm × 57 cm, silk and cotton, natural and synthetic dyes, early twentieth century. The brocade motifs are similar to that of garment in Fig. 1. He Haiyan collection.

Similar garments to this jacket and the jacket in Fig. 1 are also found in the Zhenfeng area of Southwest Guizhou province.

4.14 Miao weaving in Rongjiang



Fig. 1 (Right) a woman's headscarf from the Rongjiang area, 20cm wide, cotton, indigo dye, circa 1900. The eight-pointed star motif, which is omnipresent in Southwest China, is surrounded by 'dragon's teeth (also known as 'dog's teeth') and a version of the ancient Chinese leiwen 雷文 running pattern. Dating at least from the Shang dynasty this design

is associated with rain and good harvests in the Southwest. He Haiyan collection.

(Above) detail of the weaving.

(Below) detail of reverse side.

4.15 Miao weaving in Bijie



Fig. 1 (Right) a Miao brocade panel from a peijian, meaning a stole. The original garment consisted of two such panels, with a front opening. Bijie area, Northwest Guizhou province, 70 cm × 27 cm, silk and hemp or ramie, natural dyes, nineteenth century. Private collection.

(Above) detail of front.

(Below) detail of reverse side.

4.16 Miao weaving in Songtao



Fig. 2 detail of the dragon motif in Fig. 1.



Fig. 1 Wedding bedcover, 111 cm × 107 cm, wool and cotton, synthetic dyes, early twentieth century. This rare motif illustrates a variant of the dragon/Naga motif that is found amongst several groups in the Southwest, stylized to the point of near-abstract, but with recognisable 'legs' and eyes. Related to similar motifs found amongst both Miao and Daic groups, as well as the Han Chinese dragon. Chris Hall collection.

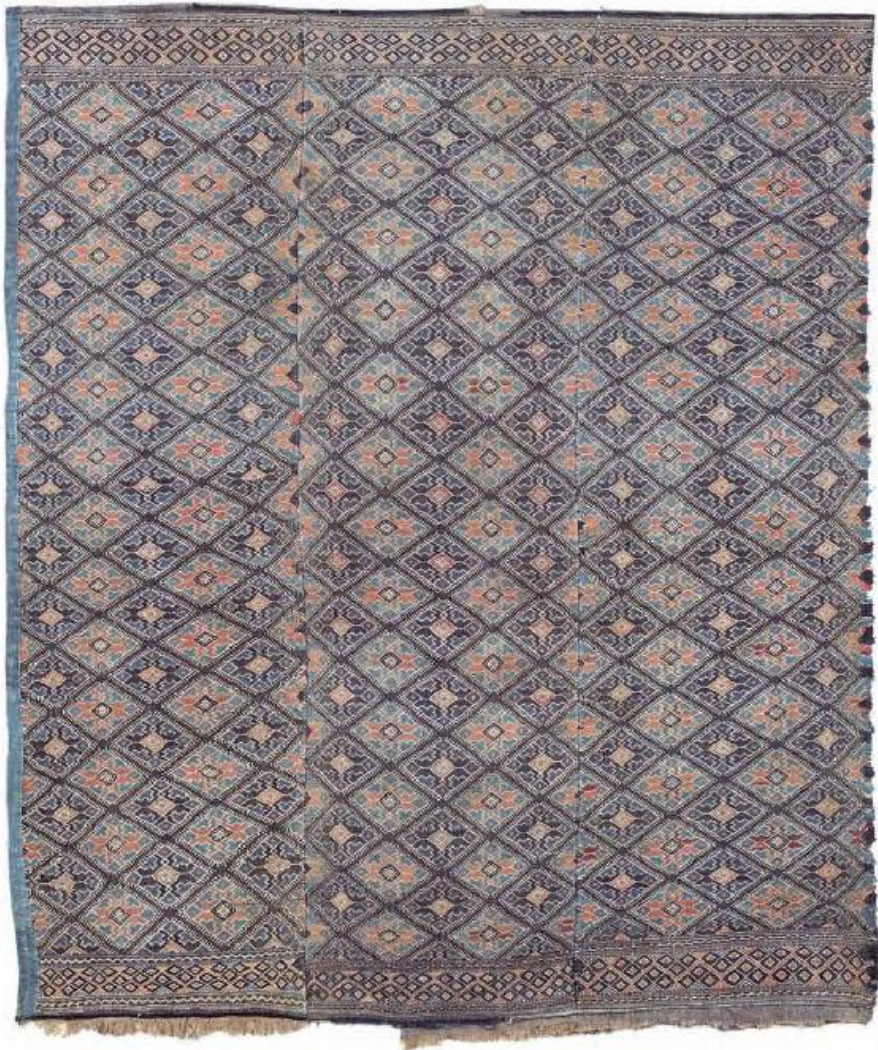


Fig. 3 Wedding bedcover, 113 cm × 98 cm, wool and cotton, natural dyes, nineteenth century. A classic example of Miao brocade from the Songtao area. He Haiyan collection.



Fig. 4 Details of the front and reverse sides of Fig. 3.

4.17 The Yao

Uniquely amongst the peoples of Southwest China, the Yao hold Daoist beliefs. Like the Miao, they have had a long and close relationship with Han Chinese culture, while maintaining a distinctive identity. They have adopted aspects of the religion and writing system of their Han neighbours, and most Yao people are devoted to Daoism, having adopted the religion in the thirteenth or fourteenth century. They have used Chinese characters for centuries, albeit mainly for ritual purposes, to compose genealogies and religious texts.

In Yao mythology the founding ancestor, King Pan (Pan Hu), married a Chinese princess; other similarities in Yao and Han myths of origin also suggest an early link between the two groups. The term Yao was first used during the Tang dynasty and comes from the expression *moyao*, which means ‘exempt from public duty and taxes’ [Lemoine 1978, 807], a privilege that is enshrined in a long scroll known as *guoshanbang* (‘permit to pass through the mountains’) or ‘King Ping’s Charter’, a copy of which is the treasured possession of every Yao group [Pourret 2002]. This exemption is believed to have been granted to them by a Chinese emperor of the Tang dynasty (618–906), and renewed twice during the Song dynasty, in 1163 by the emperor Xiaozong and again in 1260. This ‘passport’ enabled the Yao – who formerly practiced slash and burn agriculture – to settle freely in any mountain range they choose.

The fact that this charter conferred real advantages, and was not merely ceremonial, is demonstrated by the way the neighbours of the Yao, mostly of Han origin, used Yao people as ‘front men’ on titles of land ownership or declared themselves to be Yao in order to avoid taxes [Lemoine, 1991, 599]. This phenomenon still causes confusion in the identification of Yao groups in present day China.

From the Yuan dynasty onward, the Yao were subject to periodic repressions, which seem to have had the effect of dispersing them throughout South and Southwest China, with some groups migrating further west and settling in Southeast Asia. Today, the Yao are found in Guangxi (the largest Yao population in China), Hunan, Guangdong, Yunnan, and Guizhou provinces. In the last census in 2000, the Yao in China numbered 2,637,421.

Some Yao, such as those from the Jianghua area, seem to have

adopted ‘Yao’ ethnicity relatively recently.



Fig. 1 Detail of a bedcover from the Jianghua area, decorated with auspicious Chinese



Fig. 2 Detail of a Yao wedding bedcover (Section 4.20, Fig. 1) from Jinxiu in Guangxi province, silk and cotton, natural dyes, nineteenth century. He Haiyan collection.



Fig. 1 Woman's festive jacket, 116 cm × 55 cm, wool and cotton, synthetic dyes, early twentieth century. He Haiyan collection.

4.18 Hong Yao weaving in Longji

Huangluo village, Heping district, Longsheng county in Guangxi Province. 广西省，龙胜县，和平乡，黄洛寨. Survey conducted in January 2013.

Hong Yao, meaning ‘Red Yao’ is a Chinese appellation derived from the colour of the costumes worn by the female members of the group. The Hong Yao refer to themselves as *younuo* (transliterated as *younian* 优念 by the Chinese) and they belong to the *bunuyao* 布努瑶 subgroup of the Miao-Yao family. Their language is closer to the Miao language than to other Yao languages. According to official Chinese sources, this Yao subgroup has a population of 50,000 people, of whom about 5,000 are living in 20 to 30 villages in the Congshan mountains of Heping district, Longsheng county, in Northeast Guangxi province. The area was formally called Sangjiang 桑江, ‘Mulberry Tree River’, suggesting that silk was produced there in ancient times.

This village of around 400 people (82 households) is entirely populated by Hong Yao people. Everyone in the village is surnamed Pan. Villagers say that the Pan clan traces its origins to Shandong province, and that they settled in this mountainous area of Guangxi during the Ming dynasty after fleeing hardship. Two styles of women’s costumes are produced by the Hong Yao of the Longji area; one style is decorated with embroidery in cross stitch, the other, which is the subject of this chapter, is woven with supplementary wefts.

As Huangluo is located on the route to a scenic resort, villagers have been encouraged to continue weaving brocades to offer for sale to passing tourists.



Fig. 2 Pan Enmei at her loom, wearing a jacket that she wove herself.

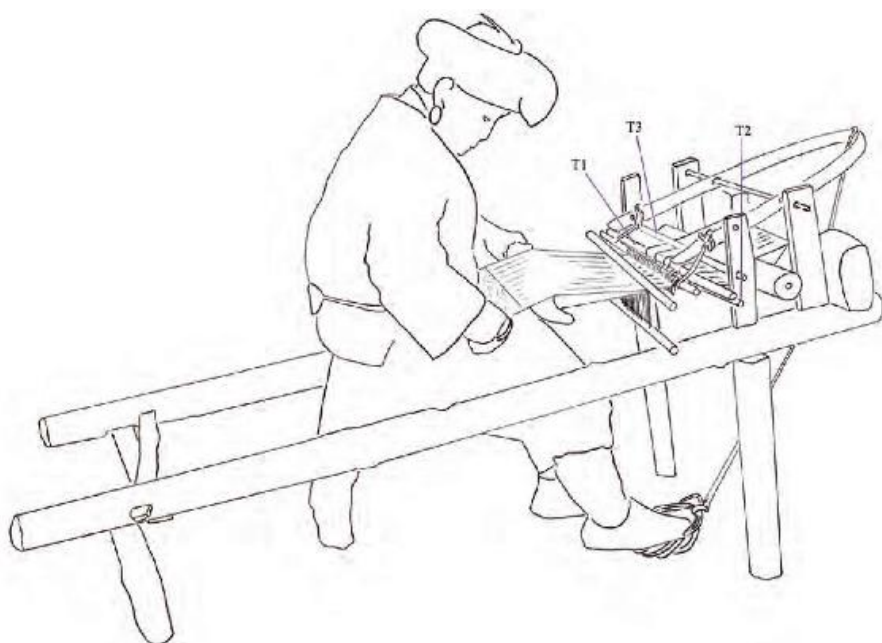


Fig. 3 Pan's loom, showing the Tubes-and-Layers system.

The weaver interviewed for this survey, Pan Enmei, is 50 years old. She started to learn brocade weaving at the age of eight. Her first task was to master all the brocade patterns by embroidering them on black cotton fabric, memorizing the number and sequence of warps for each supplementary 'weft'. Only after she had learned all the motifs by

heart did her mother allow her to begin to weave them on the loom.

There are 82 households in the village, of which around ten are still weaving brocade. According to Pan, only a few weavers are still able to weave the body of a traditional jacket, the most complex part. Several older weavers told us that surrounding Hong Yao villages also maintain the tradition of brocade weaving, and that they weave the same motifs. This suggests that the motifs are not characteristic of a single village, but of the entire group of Hong Yao living in the area.

The generation of women in their twenties seems uninterested in learning brocade weaving. However, brides still have to present traditional jackets at their wedding; a minimum of five jackets, some decorated with brocade, others with cross-stitch silk embroidery. Those jackets are either produced by older female relatives or they can be ordered from professional weavers and embroiderers. Brocaded jackets cost 1500 to 3000 RMB, embroidered jackets cost 2000 to 5000 RMB as they are more timeconsuming to make.

Older weavers reported that cotton and silk (the latter used mostly for embroidery) were grown and spun by local households until the 1980s, but that domestic production of yarns has now completely ceased. Nowadays, commercial white cotton yarn is used for the warps and the ground wefts; supplementary wefts are made of shop-bought wool.

The most important function of Hong Yao brocade is to decorate women's jackets for weddings and festivals. Pan says that the pattern represented on the front of women's woven jackets is called 'The Yao King's mark' 瑶王印 (a reference to Pan Hu) and is both a way of identifying other Yao women of the same group and a protective symbol. On the back of the jacket, stylized tiger's paws are said by Pan to symbolize strength and courage.

During the first month of the lunar year, older weavers told us that women were supposed to spend their time exclusively on weaving, and no other type of work was allowed to them, apart from routine household tasks such as cooking. This custom is the exact reverse of that practised elsewhere in Southwest China, where weaving is traditionally forbidden at this time.



Fig. 4 Detail (left) and reverse side (right) of the jacket illustrated in Fig. 1. According to Pan, the motif at the top is a human figure riding a dragon.

Loom characteristics

Total number of warps: 354

Number of warps per reed space: 2

Brocade width: 28 cm

Wefts are beaten-in with a heavy wooden beater with two handles

The loom

The Hong Yao loom is a back-tensioned frame loom with one heddle, which is raised by two levers pulled by a cord attached to the weaver's foot. The loom is used for tabby weave and also has a 'two tubes-three warp layers' mechanism that is used to aid the insertion of some continuous supplementary wefts. Most patterning wefts are inserted by hand after counting and separating the warps (by eye) with a long, thin and sharp wooden stick. Pan uses an old brocade fragment as an *aide mémoire* when she has doubts about warp selection (Figs. 10 and 15).

The two bamboo tubes T1 and T2 separate the upper warp layer (of the natural tabby shed) L2 into two layers L2.1 and L2.2. A third tube T3, located behind T1 and T2, is fixed in two holes on the loom frame: it is used to hold L2 down while L1 is lifted up by the heddle in order to open the tabby countershed.

Wefts are not inserted with shuttles but with bobbins. A heavy wooden beater is used to beat-in the last row of weft.

Weaving technique

The front face of the brocade faces upwards on the loom.

The 'two tubes – three layers' system (Fig. 3) is used only for weaving the uniformly red-coloured bands at the extremities of the woven panel, in which continuous supplementary wefts float alternately over three warps then under one warp.

1. Tabby weave

Natural shed (Figs. 6, 7, 8): warps layer L2 is up, L1 is down; tube T1 is up, T2 is down.

Countershed (Fig. 9): warps layer L1 is up, L2 is down; tubes T1 and T2 are both down.

2. Use of the 'two tubes – three layers' system (Figs. 6, 7, 8)

Heddle and warp layer L1 are down; T2 is pulled up by hand above T1 (Fig. 6) in order to separate warps layers L2.1 and L2.2, creating the first shed. A flat wooden blade is introduced in the shed, in front of the reed. Once the first shed (L2.1 up, L2.2 down) is secured by the blade, T2 is released and lies on L1, thereby opening the second shed (L2.1 down, L2.2 up) at the back of the blade (Fig. 7). The first row of continuous supplementary weft is then introduced in the first shed (L2.1 up, L2.2 and L1 down).

The blade is removed, automatically opening the second upper shed (L2.1 and L1 down, L2.2 up) (Fig. 8). The blade is then introduced into this shed and the second row of continuous supplementary weft is inserted.



Fig. 5 A Miao woman in Huangluo weaving a warp-patterned belt on simple back-tensioned frameless loom.

3. Complex weft patterning

The sheds are created by selecting warps with a flat wooden stick from the totality of the warps ($L1 + L2$) (Fig. 10). Warps are selected either from memory or by counting the warps on an old textile fragment.

Pan says that it takes her about three months to weave a full brocade panel (about 1.5 metre long) for a jacket, ‘weaving from dawn to dusk’. It is unlikely that she actually weaves that intensively since she has other household activities to pursue during that time. From our observations we estimate that a day’s work produces about five centimetres of brocade.

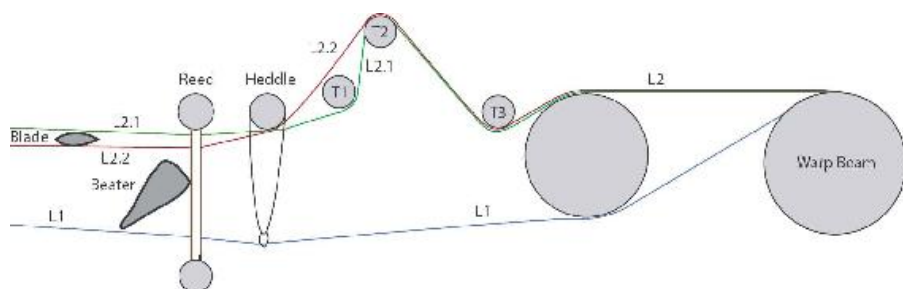


Fig. 6 Tube T2 is temporarily pulled up in order to open a patterning shed between two sublayers of L2 (natural tabby shed upper warps layer), where a blade is inserted; the beater keeps the natural tabby shed open.

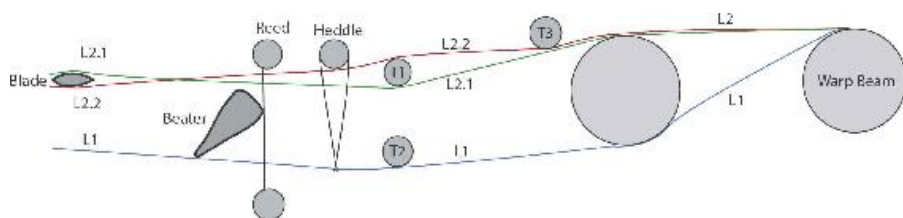


Fig. 7 Immediately following the actions in Fig. 6: tube T2 has been allowed to drop down, but the patterning shed is held open by the blade.

Glossary of Terms

Loom: *bu di*

Warp/weft: *fu*

Warp beam: *ya xi fu*

Cloth beam: *bug en*

Reed/comb: *sang*

Heddle: *mei guo gui*

Beater/sword: *bu dao*

Bobbin: *fo*

Back strap: *da*

Brocade: *nuo*

Tabby fabric: *mo ban*

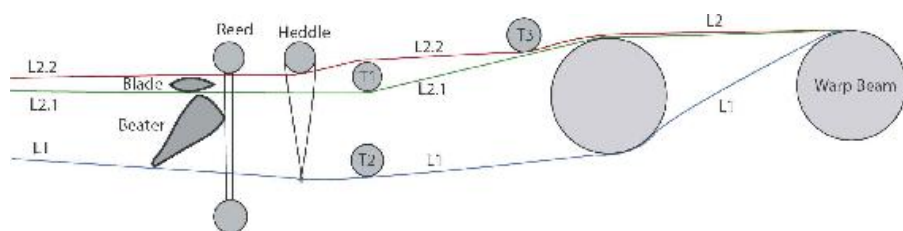


Fig. 8 The blade has been removed from its original place (Figs. 6, 7) and reinserted in order to open a new patterning shed; the beater is still keeping the natural tabby shed open.

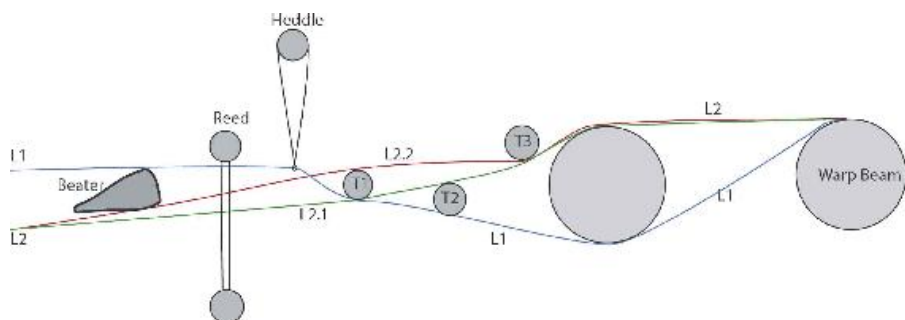


Fig. 9 The heddle is raised in order to open the tabby countershed; tubes T1 and T2 are inactive.



Fig. 10 Pan inserts a blade to create a complex patterning shed, counting the warps on her mother's pattern sample to guide her. For complex weft patterning, warps from both the upper and lower layers of the tabby shed are selected.

Structural analysis

Weft faced compound tabby, used as a panel for a woman's wedding/festival jacket, 26.5 cm wide. Second half of the twentieth century.

Thread count: 15 warps, 24 wefts (12 ground wefts + 12 supplementary wefts) per centimeter.

Warps: white cotton, 2-ply, S-spun.

Ground weft: white cotton, single-ply, Z-spun.

Supplementary wefts: wool, mostly red, some black and green,
4-ply, S-spun



Fig. 11 Detail of the front face of the woven brocade.

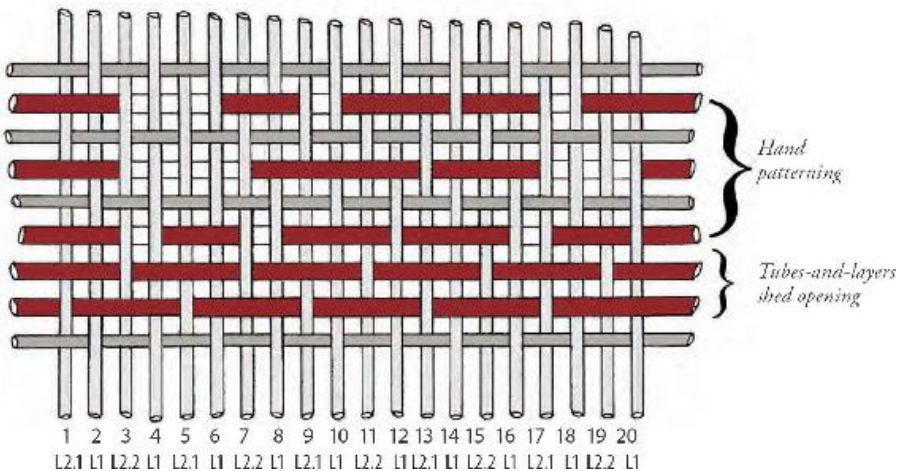


Fig. 12 Structure diagram. The first two rows of patterning weft (red) are inserted with the Tubes-and-Layers system, the next three rows are inserted by hand. Warp sublayers (L1 etc.) correspond to layers marked in Loom mechanisms in Figs. 6, 7, 8 and 9.



Fig. 13 Detail showing the arrangement of the two first rows of supplementary wefts, inserted in a shed opened by the Tubes-and-Layers system.



Fig 14 Face (above) and reverse (below) details of a jacket panel.



Fig. 15 Pan Enmei, displaying a jacket panel woven by her mother, which she uses as a model for her weaving.

4.19 Yao weaving in Jianghua



Fig. 2 Baochang village, showing the entrance to a group of homes around a courtyard. The entrance is decorated with auspicious banners in red that are renewed every Lunar New Year.

Liantangwan hamlet, Baochang village, Dalupu township, Jianghua county, Southwest Hunan province. 湖南省，江华县，大路铺镇，宝昌村，连塘湾寨. Survey conducted in August 2013.

The Yao people living in this village and in the surrounding area are known as *pingdi* Yao, which means ‘Yao of the flat plains’, distinguishing them from *gaoshan* Yao, the ‘Yao of high mountains’. Some of the *pingdi* Yao may be Han people who have managed to reclassify themselves as Yao in order to avoid paying taxes [Lemoine, 1991 p. 599]. They readily admit that they do not speak the Yao language, but rather a Cantonese dialect similar to that spoken in Wuzhou (Eastern Guangxi province, on the border with Guangdong province). The area where they live is similar to neighbouring Guangdong, with flat landscapes and a hot climate, allowing two rice harvests annually. Its architecture includes impressive clan halls with high ceilings. It is reasonably prosperous but it is not visited by tourists.

Baochang village is composed of 60 households, and is located close to

another village numbering almost 300 families. Based on observation and several interviews it appears that traditional brocade looms are still in use in at least two thirds of the houses. Most of these looms are ancient, at least three generations old, the reason being that in this area the brocade loom is considered to be a precious family heirloom: it is passed from mother to daughter or, in case she has no daughter, to her daughter-in-law. Most weavers say that nobody knows how to build these looms any longer, and their mechanism is one of the most intricate that we found during our research. One carpenter in the village said he was able to build a new one, though we saw no new looms during our survey.

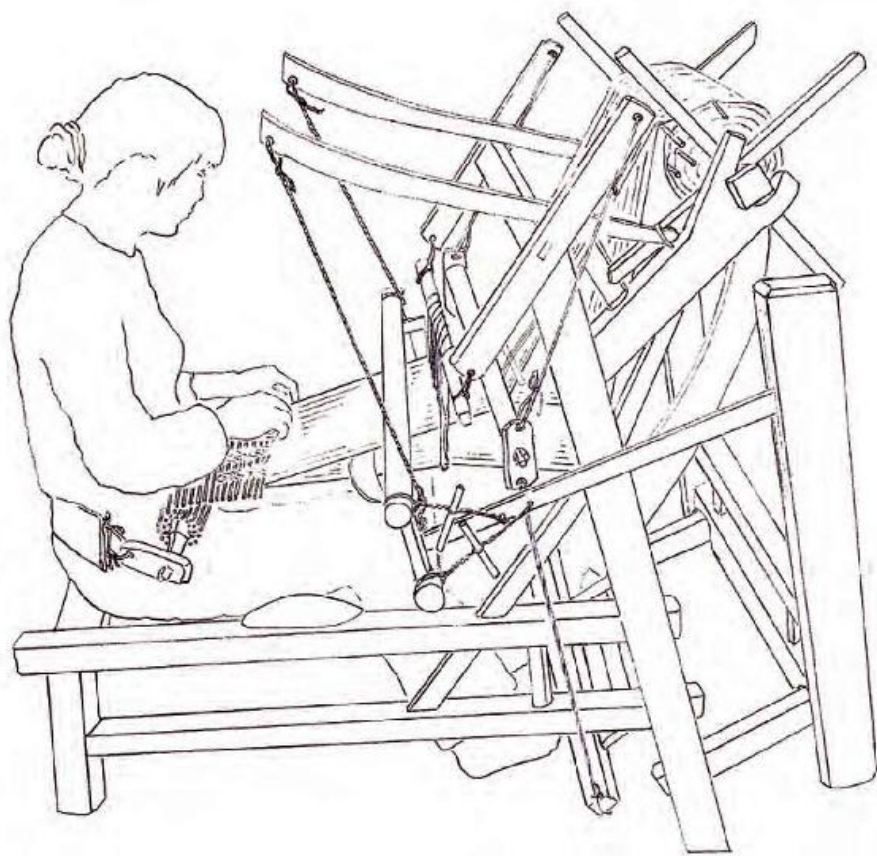


Fig. 3 Li Fu'e at her loom.

The weaving technique is mostly practised by women over 50 years of age, since most women belonging to the younger generation are said to be not interested in learning, or have left the village already. Li Fu'e, the weaver who provided most of our information, is 50 years old; she says that she started to learn from her mother 'at the age of

Contemporary weavers weave with brightly coloured commercial yarns, but a more restrained palette was used in the past. A local weaver showed us one of her wedding bedcovers (locally known as *babaobei*, 八宝被, ‘Eight Treasures Covers’), which she wove about 30 years ago: this was decorated with blue warps in two tones, which she said were dyed with natural indigo by a professional dyer who attended the local weekly market until the late 1980s. Weavers in the village did not produce their own indigo paste.

According to the weavers interviewed, there are no restrictions about when brocade weaving can be done, they can weave even during the first lunar month, which is traditionally forbidden to many weavers in Southwest China.

Li’s older female relatives told us that in the past, a bride was required to weave a minimum of 20 bed covers and often presented up to 60 for her wedding; this impressive quantity can be explained by the relative efficiency of the weaving technique, the fastest that we observed during our research, which allows them to complete a bedcover in less than a week.

The loom

The Jianghua Yao loom is a back-tension loom (the back strap is usually made of buffalo hide) with relatively sophisticated mechanisms that contrast with the simplicity of the textiles that it is used to make. There is only one heddle, raised by means of a transverse treadle. This treadle also pulls down a transverse bar which presses down the upper warps layer of the natural shed, in order to widen the countershed. This is essentially the same mechanism found on the Tujia loom from Longshan, which also has a transverse treadle. The reed is massive compared to other brocade looms and its movement is facilitated by horizontal beams that connect it to rocker bars at the back of the loom. A heavy reed attached to swinging bars, usually used for beating-in the weft, is a characteristic feature of many traditional Han Chinese looms, to which this loom appears closely related. The Yao Jianghua weaving technique seems to be an adaptation of this general-purpose Chinese loom to weave a unique textile with warp patterning.



Fig. 4 Li weaving a wedding bedcover panel.

The upper warps layer of the natural shed is separated into two layers (corresponding to groups of warp yarns of different colours) by a bamboo rod, thereby facilitating the insertion of the wefts.

A long and heavy wooden beater is used to beat in the wefts. When placed on its edge, it separates the two warps layers and creates a wider shed opening. The ground wefts are inserted with a shuttle.

Loom characteristics

Total number of warps: 374

Number of warps per reed space: 2

Brocade width: 36.8 cm

Wefts are beaten-in with a wooden beater



Fig. 5 Li counting the warps on an old fragment.

Weaving technique

The weaving technique is the only one that we found where the warps form the primary decorative element across a full-width textile. Other warp-patterned textiles are made in Southwest China but they are mostly narrow bands for belts, leggings or headdresses, such as the headscarves of Miao people in Shidong.

The warp patterning effect is produced by the insertion of thin bamboo sticks, which are a bit longer than the width of the cloth. Li says that she purchases them ready-made from local incense or toothpick factories. One stick is inserted between every two insertions of tabby wefts (one weft in the natural shed, the next in the countershed), forming the pattern. The weaving technique closely resembles that used to produce weft patterned brocade, only instead of a supplementary weft, a bamboo stick is inserted to allow the patterning warps (traditionally these were blue) to float above three wefts (white), and to maintain an even spacing. The bamboo sticks embedded in the weaving are left in place until the panel is completed, at which point they are removed, leaving raised warp floats forming a coloured pattern against a white ground.

Chinese characters often appear in the woven designs (Fig. 1), more so than in the brocades from other areas, although characters are also

sometimes found in Tujia, Buyi in Xingyi and Maonan wedding bedcovers. This is also suggestive of links with Han Chinese weaving traditions.

The weaving proceeds as follows (Figs. 7, 8). With the tabby heddle in the 'down' position, a ground weft is inserted in the natural shed. A bamboo stick is then inserted (counting and selecting warps according to the pattern, often referring to an old fragment, Fig. 5) in the upper layer of the natural shed. The heddle is then raised, opening the countershed. The bamboo stick which has just been inserted is pushed towards the back of the loom against the reed: as a result warps raised by the stick from the upper layer of the natural shed are now on the same level as the upper layer of the countershed. A second ground weft is inserted in this shed (Weft2 on Figs. 7, 8). The bamboo stick is then pulled back toward the weaver, the heddle is lowered and a third ground weft is inserted into the natural shed. The next bamboo stick can now be inserted in the upper layer of the natural shed.



Fig. 6 Both warps layers consist of groups of coloured warps.

The weaver continues in this way until one section of the pattern is finished; for the next section a similar process is used but the bamboo stick is inserted into the upper warps layer of the tabby countershed so that another colour appears on the face of the brocade. In order to achieve this result, the warps layers are pre-selected, according to the

pattern requirements, before being set up on the loom (Fig. 6).

During the insertion of the sticks, the reed is pushed back and secured at the back of the loom, otherwise it would fall forward under the weight of the two wooden vertical beams and hinder the work. The reed is occasionally moved back and forth to help separate the warps layers in order to open the sheds. This type of reed attached to a rocker is used as a weft beater in similar looms used by Han Chinese weavers in other parts of China, but in this case it plays no part in weft beating. This is highly unusual for this type of loom, where the reed is normally the sole weft beater. This suggests that the design of the loom was acquired by the Jianghua Yao from a Han Chinese source at some time in the past, but that the Yao did not fully exploit all of its features and have retained their older practices, such as using a separate wooden beater for the wefts.

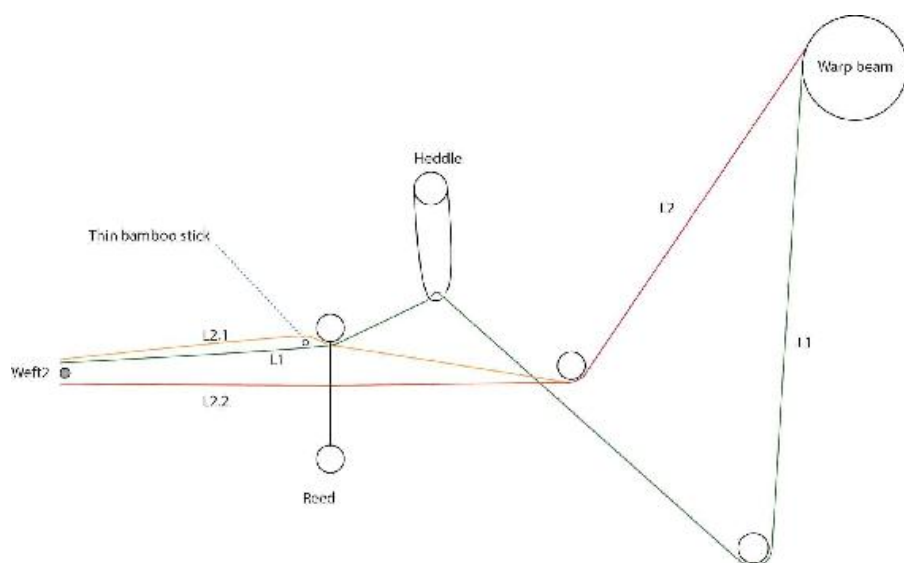


Fig. 7 Loom mechanism.

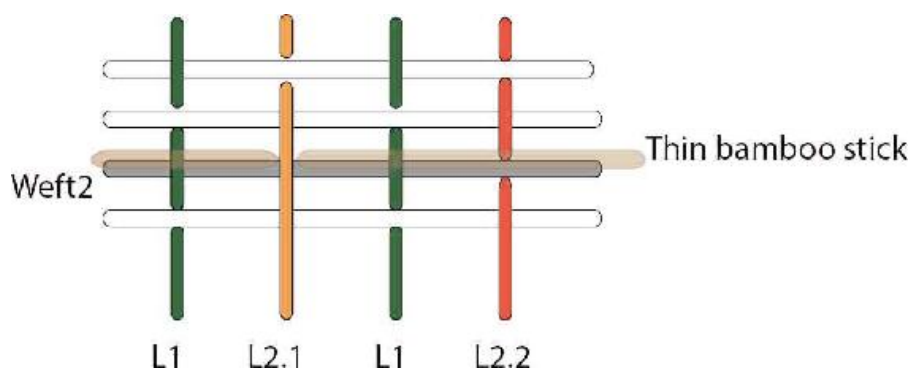


Fig. 8 Structure resulting from the insertion of white wefts and a thin bamboo stick, shown

Li said that she knew from memory the number of warps of each colour to select and pick for the insertion of the thin bamboo sticks. In fact, she, as well as other weavers we observed, often use an old brocade fragment as a model to count the number of warps to be selected. All wefts are beaten-in with a heavy wooden beater.

Li told us that she weaves an average of ten centimeters per hour and can easily complete one metre per day. As mentioned, this is very fast by regional standards. A wedding bedcover, composed of three panels, takes less than a week to produce.

Glossary of Terms

The terms below are not Yao, they belong to the Cantonese dialect spoken in Wuzhou, which is related to Mandarin Chinese.

Loom: *jie gei*

Warp: *gen sha*

Weft: *wei sha*

Shuttle (this term is also used for the beater as in the past weavers used a beater-shuttle): *bio sei*

To beat using the beater: *dai bio sei*

Reed: *kao mu* (frame), *hao* (bamboo teeth)

Cloth beam: *se fang guan*

Back strap: *yo pan*

Treadle: *cai ban*

Warp beam: *yang tou*, or *yang dao* (literally ‘sheep’s horns’, describing the shape)

Heddle: *zhong xin*

Bedcover panel: *ba bao bei* (the same term denotes the bedcover itself).

Structural analysis

Warp faced compound tabby used as a wedding bedcover panel, 34cm wide. Made in 2010. Thread count: 20 warps, 10 wefts per

centimetre.

Warp: cotton in black, white, blue, red; 2-ply, S-spun.

Weft: black cotton, 2-ply, S-spun.

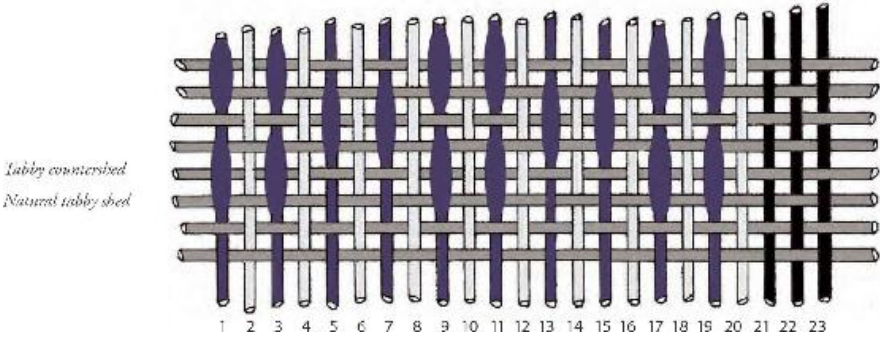


Fig. 9 Internal structure analysis of a wedding bedcover panel.



Fig. 10 Detail of the textile structure in Fig. 9.



Fig. 11 Reverse side of Fig. 10.



Fig. 12 Li (right) and a neighbour, display a wedding bedcover with traditional colours, woven in the first half on the twentieth century.

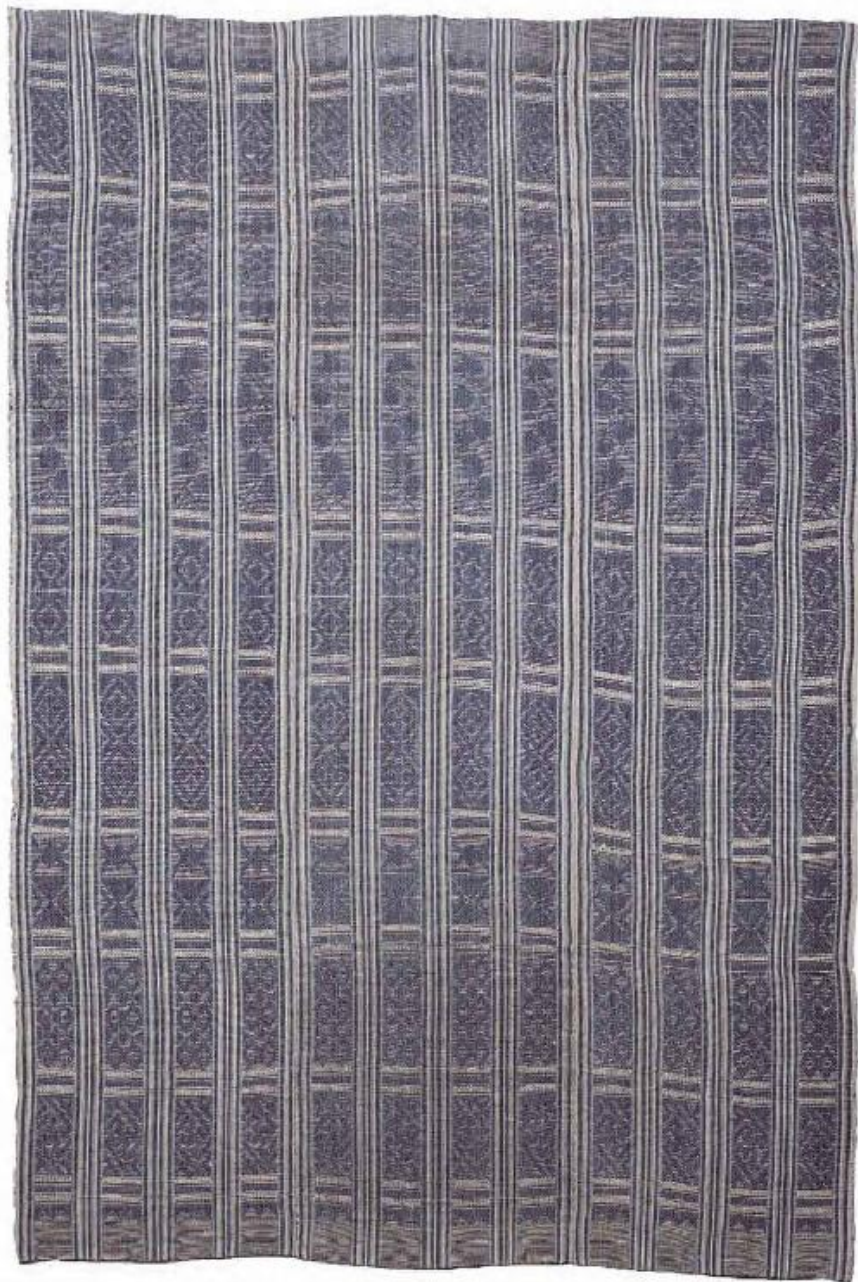


Fig. 13 Wedding bedcover, 150 cm × 102 cm, cotton, natural indigo dye, circa 1900. He Haiyan collection.



Fig. 14 and 15 Detail from Fig. 13, showing the reverse of the textile (left) and front face (right).

4.20 Yao weaving in Jinxiu

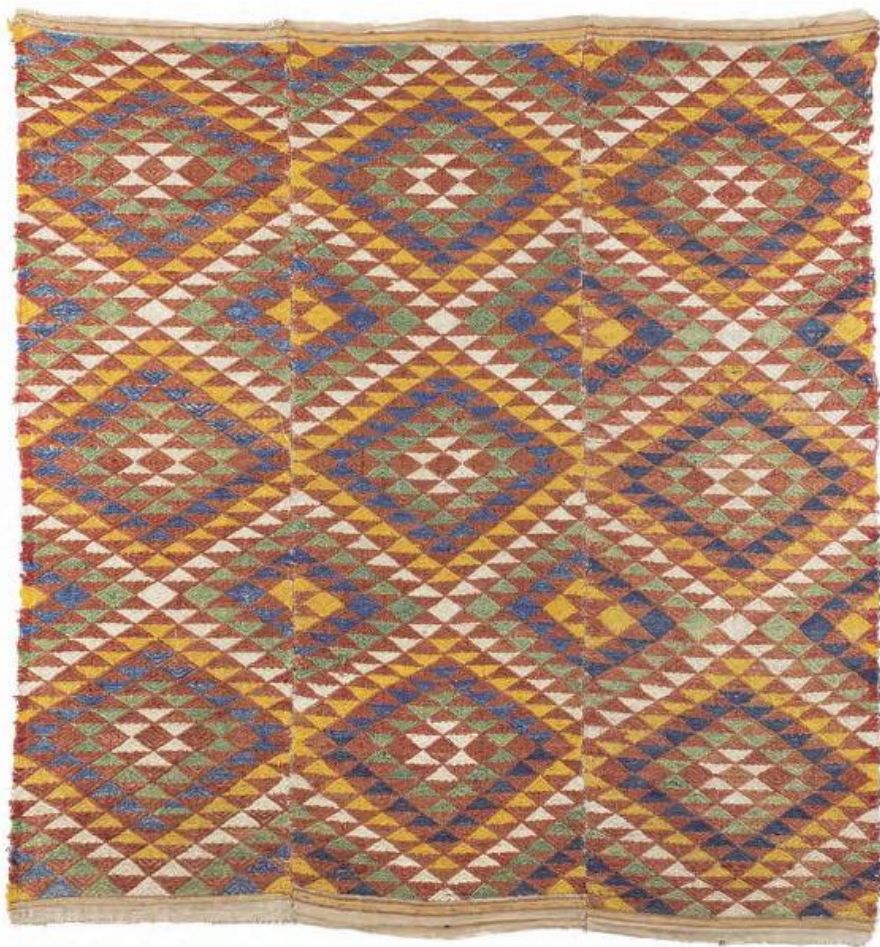


Fig. 1 Yao wedding bedcover, Jinxiu area, Guangxi province, 81 cm × 79 cm, silk floss and cotton, natural dyes, nineteenth century. This motif, locally known as 'fish motif' is characteristic of Yao brocade weaving from the Jinxiu area. He Haiyan collection.



Fig. 2 Details of the front and reverse faces of the bedcover in Fig. 1.



Fig. 3 Yao wedding bedcover, from the Jinxiu area of Guangxi province. 134 cm × 95 cm, silk floss and cotton, natural dyes, nineteenth century. Pattern of stylised 'bird in flight' motifs and wanzi motifs. He Haiyan collection.

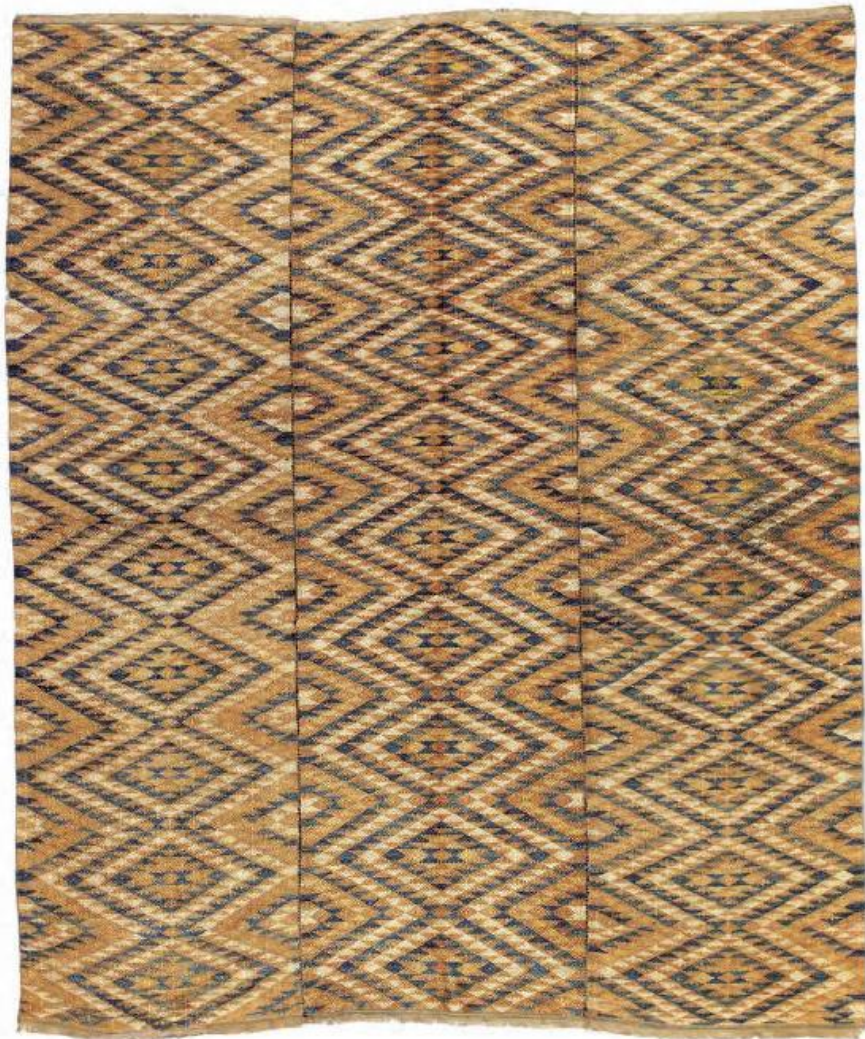


Fig. 4 Yao wedding bedcover from the Jinxiu area of Guangxi province. 120 cm × 99 cm, silk floss and cotton, natural dyes, nineteenth century. Chris Hall collection.

4.21 Yao weaving in Bama and Du'an



Details of the front and reverse sides.

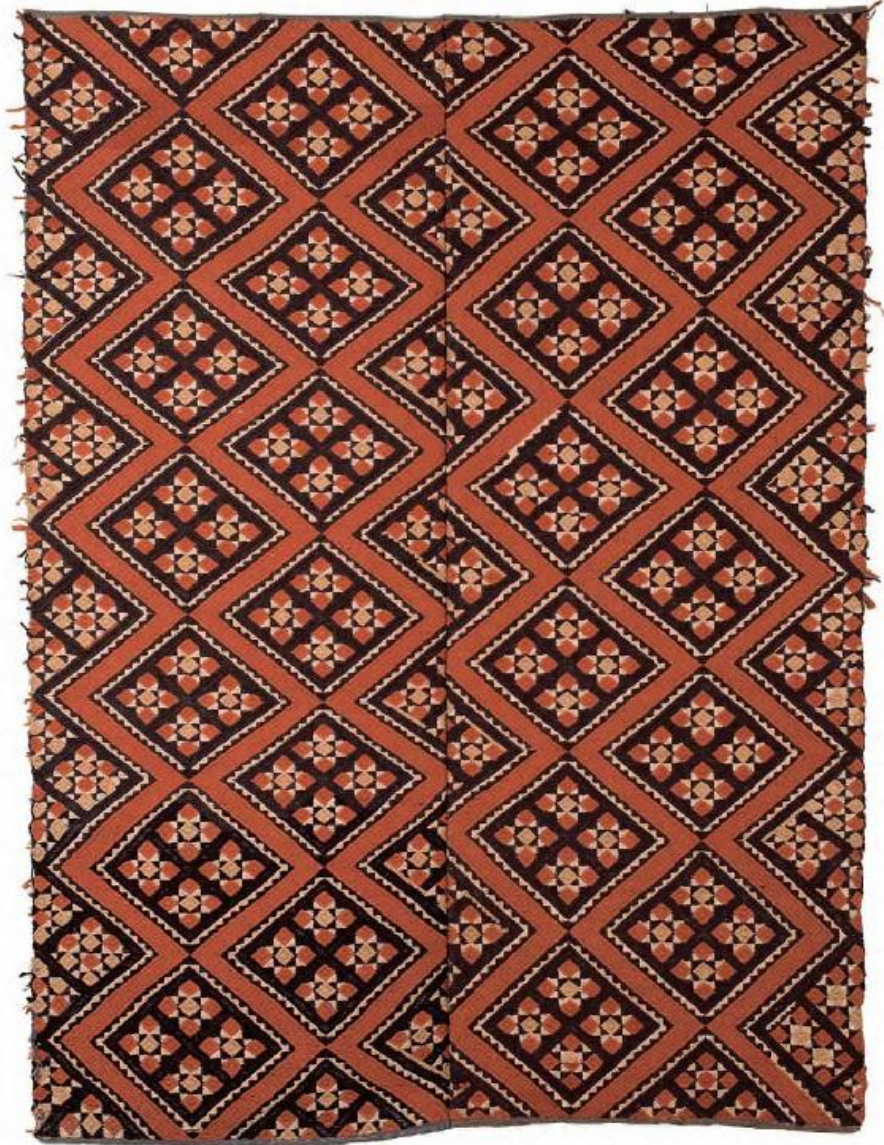


Fig. 1 A Yao wedding bedcover, 119 cm × 90 cm, cotton, natural dyes, Bama or Du'an, Guangxi province, nineteenth or early part of the twentieth century. He Haiyan Collection.

Chapter 5: the Daic (Tai-Kadai) peoples

5.1 Introduction

The best known members of the family of peoples speaking Daic languages are the Tai, who make up the majority of the population of Thailand, as well as Laos, parts of Myanmar and northern Vietnam. In terms of diversity however, the greatest number of distinct Daic languages and the greatest variety of loom and weaving traditions, are found in Southwest China, which is (not co-incidentally) where this family has its origins. Daic speakers in China include the Zhuang (the most numerous group), Dong, Maonan, and Buyi in Guizhou and Guangxi; the Dai in Yunnan; and the Li (Hlai) in Hainan. Throughout the last two millennia groups of Daic speakers, particularly from the Tai subfamily, have migrated westwards from their homelands and Tai speakers are now found as far west as Assam in India. The designation 'Dai', used in China, includes several Tai groups with close relationships with Tai groups living further west. One such group is closely related to the Shan people in northern Myanmar, others are related to the 'Tai Lu' and 'Tai Yuan' peoples of northern Thailand.

Daic peoples are mainly rice farmers, occupying lower elevations by preference and building extensive rice terraces. Their religions are a mixture of older traditions, usually described as 'shamanism', overlain or partially replaced by more recently acquired Buddhist beliefs. The 'shamanistic' tradition might be more accurately described as a form of ancestor veneration, which has strong parallels with Chinese native beliefs and the religions of other farming groups in Asia. In such communities clan ties and ancestry are considered very important, and ritual practices tend to underscore and reaffirm these ties. Individuals are believed to possess several distinct 'souls': after death they pass into a complex, hierarchical afterlife that mirrors the earthly one. Individual, village-based priests (shamans) act as go-betweens for the earthly and spirit realms, as well as officiating at rites of passage

ceremonies and acting as healers. In some places this native belief is combined with or replaced by Theravada Buddhist practices, or influenced by the customs of Miao-Yao and Sinitic groups in the east.

The original dress of most Daic peoples, in common with Austronesian and Austroasiatic groups, seems to have consisted of tubeskirts (mainly worn by women), and kilts or loincloths (for men), together with headcloths of various kinds. For many groups this repertoire has been supplemented or partly replaced by Chinese-derived clothing forms such as tailored jackets with button closures, and pleated, wrap-around skirts. The older repertoire could be seen in its most complete form (until recently) on Hainan.

From the point of view of weaving traditions, the Daic language family is a particularly interesting and important one. As with other groups in the region, textiles play important roles in family life, particularly in marriage customs, where the weaving of elaborate textiles by the bride-to-be (and her family) for presentation at the wedding is the norm. Other ceremonial uses include formal gifts, coffin covers and hangings for presentation at shrines and temples. Many Daic groups are famed for their skills in supplementary weft decoration, and some of the most complex and impressive textiles of this type are made by Daic weavers. Warp patterning is also used, but is less prominent. Warp ikat is absent in Southwest China, except amongst the Li of Hainan, where it is an important technique, especially amongst the Meifu subgroup. Weft ikat is made by some Tai groups in MSEA, a practice that reflects the influence of the 'Indianized kingdoms' in the west of the region, but is absent in China.

The looms used by Daic weavers encompass the widest range of any Asian language family, a fact that places Daic traditions at the centre of the development of weaving in the region. Loom designs range from the simplest foot-braced, body-tensioned looms of the Li, to some of the most complex frame looms, with motifs encoded using dozens of pattern rods embedded in rotating heddle systems, such as the looms of the Dong, Buyi, Zhuang and Maonan. Daic frame looms also include both body-tensioned types, and looms with the cloth beam fixed to the frame, and a comparative survey of these types yields clues as to how the transition from one type to another occurred. The Complex Pattern Heddles of some Daic looms are also related to the pattern recording systems of Chinese Drawlooms. We describe Daic looms and textiles in the following pages, and discuss their relationships in Part III.



Fig. 1 Detail of a Dong wedding bedcover panel from the Bazhai area in Liping county, Southeast Guizhou province. Old brocades from that area have some interesting similarities with ancient fragments excavated from tombs dating to the Warring States period (BCE 403–221) and the Western Han dynasty (BCE 206–28 CE).

5.2 A note on Daic Complex Pattern Heddles



Fig. 1 Pattern repeats on a Maonan wedding bedcover: design repeats are produced by rotating a huaben patterning system in one direction only. The colours of the discontinuous supplementary wefts are varied from one repeat to the next by the weaver, introducing visual interest into the design. The lengths of the repeats vary slightly, due to variations in the thickness of handspun wefts.

Pattern recording systems consisting of pattern heddles (*huaben*) incorporating thin bamboo pattern rods to define sets of warp lifts heddle loops, are characteristic of the looms used by Daic weavers. They are not used (as far as we are aware) by weavers from other ethnolinguistic groups (Miao-Yao or Sino-Tibetan), with the exception of some elements of this technology that have been borrowed by Chinese Drawloom designs (see Part III). The greatest variety of *huaben* is found amongst Daic weavers in Southwest China, though this type of system is also used by Daic weavers in neighbouring countries, such as the Tay Dam (Tai Dam) of Northern Vietnam.¹ To the west, a variant of this system, the 'Venetian Blind' heddle, which uses a flat, hanging web of pattern rods rather than a rotating drum, is common amongst Tai weavers (see Section 5.28).

The basic principle of operation of these systems is the same on all Daic looms. Each pattern rod selects a group of warps: when the weaver pulls this upwards it opens a pattern shed at the front (near to the weaver), and a countershed (the reverse of the pattern shed) behind the pattern heddle. A coloured weft is inserted in the pattern shed, and another may be inserted (optionally) in the countershed. With the shed still open, the rod is removed and re-inserted at the front of the rotating drum, preserving the set of warp lifts for future use. The drum is rotated slightly, and the next rod is brought into play, and so on.

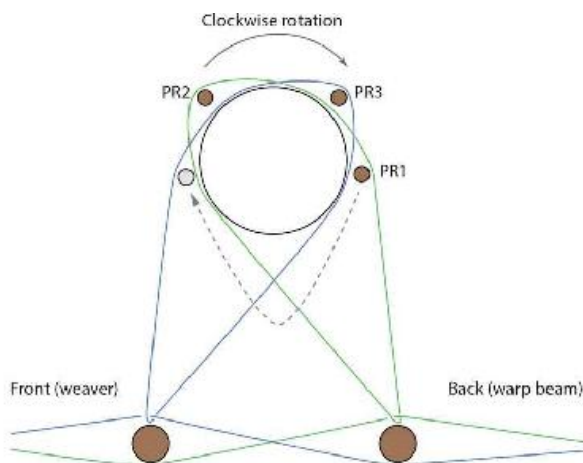
The rotation of the *huaben*, and hence the order in which the pattern rods are used, can be in one direction only (Maonan, Mulao; Figs. 1, 2) or it can be reversed (clockwise alternating with counter clockwise) at the start of each patterning cycle (Buyi, Dong, Zhuang; Figs. 3, 4).

Rotation of the *huaben* in one direction only produces motifs that are repeated along the warp direction. This is illustrated in Fig. 1 below, for a Maonan bedcover.

Reversing the *huaben* at the start of each patterning cycle produces motifs with a reflection symmetry, with the axis of symmetry along the weft direction (Fig. 4).

Maonan weaving in diagrammatic form, visualised with just three pattern rods for simplicity.

At the start of the first rotation of the pattern drum, the first rod PR1 is moved from the back of the drum to the front. Its position in relation to the heddle loops is thus reversed (shed is replaced by counter-shed). The weaver inserts a discontinuous supplementary weft in the front patterning shed, and a continuous supplementary weft in the back patterning shed. She does the same with PR2 and PR3, rotating the drum as she proceeds.



After one complete rotation of the drum the rods are back in their original positions, but their relationship with the pattern sheds has become reversed (green is replaced by blue in the diagram). The weaver continues to use the rods as before, removing the rod PR1 from the back and replacing it in the counter-shed at the front, but for the second rotation of the drum she inserts a continuous supplementary weft in the front patterning shed, and a discontinuous weft in the back patterning shed. At the end of the second rotation the rods and pattern sheds are back in their original position, and the entire sequence can be repeated.

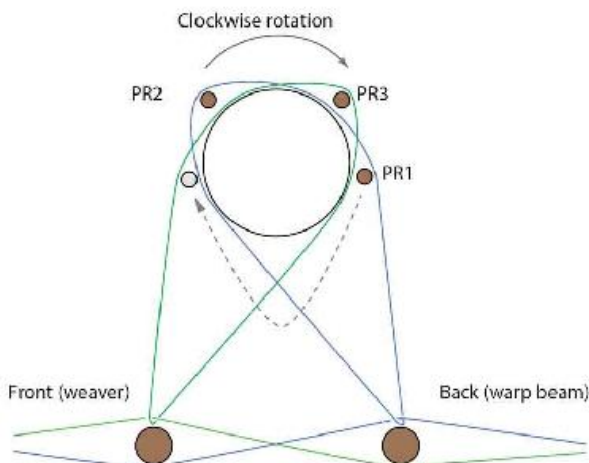
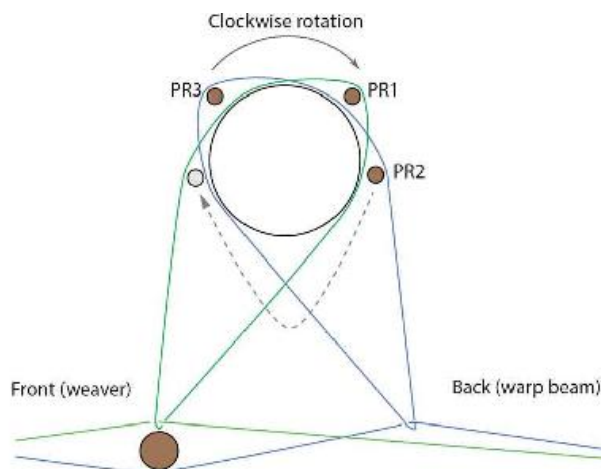


Fig. 2 Maonan pattern drum heddle. On the Maonan loom, the drum is always rotated in the same direction. One pattern repeat is woven during one rotation of the drum, using the entire set of pattern sticks once.

Zhuang weaving in diagrammatic form, visualised with just three pattern rods for simplicity.

When the weaver employs the first pattern rod PR1 she moves it from the back of the drum to the front. Its position in relation to the heddle loops is thus reversed (shed is replaced by counter-shed). The weaver inserts a pattern weft in the front patterning shed (only). She does the same with PR2 and PR3, rotating the drum 'clockwise' as the weaving proceeds.



At the end of the first (clockwise) rotation of the drum, after using all the pattern rods, the weaver reverses the direction of rotation. She now performs the same actions as before in reverse order, removing pattern rods at the front of the drum and inserting them at the back. She continues inserting pattern wefts in the pattern sheds at the front, making a 'mirror image' repeat of the pattern. At the end of this reverse sequence, the pattern rods and drum are back in their original positions again.

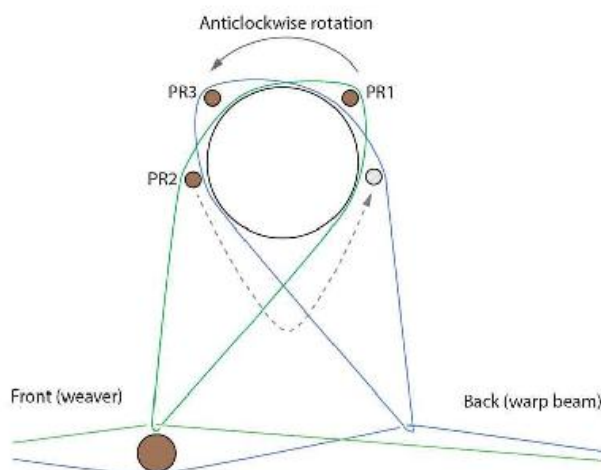


Fig. 3 Zhuang pattern drum heddle (the same principles apply to Dong, and Buyi looms). On these looms, half of the pattern repeat is woven by rotating the drum in one direction (using all the pattern sticks), then the other half of the pattern is woven by reversing the direction of rotation and using the sticks in reverse order. Only the front patterning shed is used for the insertion of discontinuous (and in some cases continuous) supplementary wefts.



Fig. 4 Detail of a Dong wedding bedcover: reversing the direction of rotation of the huaben creates motifs with a reflection symmetry, with the axis of symmetry along the weft direction.



Fig. 5 The Maonan pattern heddle in Hegang.



Fig. 6 The Dong pattern heddle in Tongdao.

¹ McClintock [2013].



Fig. 1 Tubeskirt, Qi subgroup, 54 cm × 43 cm, bast fibre, cotton and silk, natural dyes, late nineteenth century. He Haiyan collection.

5.3 Li weaving in Hainan

The Li are the indigenous inhabitants of Hainan Island, which lies off the southern coast of China, near to the border with Vietnam. Other groups present on the island include Miao, Yao and Han people, who are believed to have arrived more recently, during the last 1000 years. Linguists class the various Li (Hlai) languages as part of the Daic (Tai-Kadai) family. Other members of this linguistic group include the Tai peoples of Southeast Asia, and the Zhuang, Buyi, Dong and Maonan of Southwest China.

The Li themselves are diverse, with several dialects and languages that are mutually unintelligible (Fig. 2). Their clothing and weaving cultures are also varied, though they also have distinct features in common. All of the Li weave (or used to weave until recently) using a foot-braced backstrap loom: aside from Hainan this type is only found today only in a few remote places in mainland Southeast Asia and in Taiwan. The first detailed anthropological record that we have of the Li is the account by Stübel [1937] of his visits during the early 1930s. His book is a valuable record of Li clothing and customs at that time, and it also allows us to understand the changes that have taken place, as well as the continuity of Li weaving since that period.

Several different sub-groupings of Li are recognised by linguists and ethnologists, though the Li generally identify themselves by their town or village of origin, rather than linguistic subdivisions. For convenience we will refer to the Meifu, Ha, Qi and Run subgroups that are found in other books that discuss textiles. The Meifu and Run subgroups have textiles with consistent and easily recognised characteristics, but the textiles of the Ha and Qi groups vary significantly from location to location.

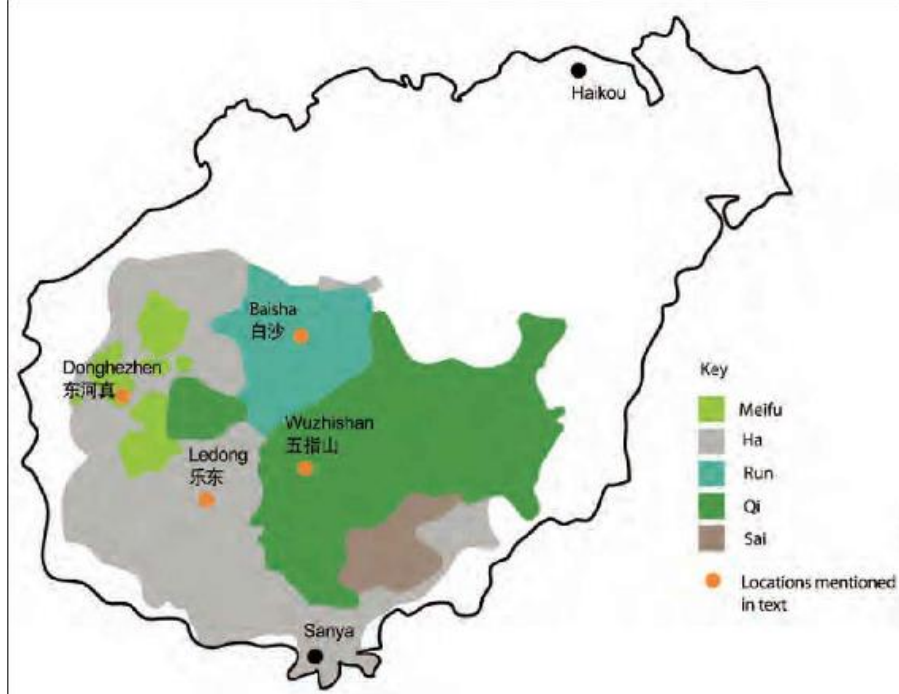


Fig. 2 Map of Hainan Island, showing the locations of Li subgroups and the places mentioned in the text.



Fig. 3 Li weaver belonging to the Run subgroup weaving a narrow band of cloth decorated with supplementary weft designs, for a tubeskirt. The complex designs are added by

selecting warps with a pickup stick. A similar method is used by Meifu Li weavers for making bands decorated with supplementary weft designs. After Stübel [1937 Pl. 42].

Li Clothing Styles

Li clothing shares some characteristics with those of Tai and Austronesian peoples. These include wearing tubeskirts and the use of a sling as a baby-carrier, holding the baby against the hip rather than on the back in the manner of Miao groups. Amongst the men both loincloths and kilt-like skirts (depending on the region) were worn at one time, though these are no longer used. The loincloth, tubeskirt and baby sling seem to be amongst the most ancient kinds of clothing in Asia: the tubeskirt and baby sling have been identified as cognates in the proto-Austronesian language reconstructed by Blust [1995], and the loincloth seems to have been widespread in Southeast Asia at one time. Li tubeskirts and Li weavings in general have some similarities with tubeskirts made by Tai people in Laos and Vietnam, in form, construction and decorative organization.

Li women usually wore a tubeskirt together with a jacket (Fig. 3), though Stübel's photographs show that jackets were not yet universally worn in the 1930s. They probably represent a (relatively) recent addition to the Li clothing repertoire. Several kinds of jacket are present on Hainan: most are tailored in a basic manner: some older jackets are 'tunic style' and lack sleeves. The Run Li make pullover jackets, while other groups make jackets that open at the front, with fastenings. These types are similar in basic form to jackets made by minority groups in mainland Southwest China and Southeast Asia. Their construction is based on tube-shapes formed by sewing strips of cloth together and joining them with straight seams. Some side-fastening and flared styles with more sophisticated tailoring, derived from Han Chinese traditions, are also worn. These were much in evidence at the time of Stübel's visits and probably represented the fashion at that time.

Skirts and jackets are not made together as sets, and pairings of items of different styles and ages are common. Most jackets are decorated only with embroidery, in contrast to sarongs where warp patterning and supplementary weft are the key decorative techniques. Comparing Stübel's photographs with present-day costume it is apparent that jacket styles are more variable and have evolved faster, whereas the decoration of sarongs is relatively stable in terms of technique and motif, in spite of the adoption of synthetic yarns and colours. The fundamental techniques and decorative layout of tubeskirts remains virtually unchanged and most decoration continues to be added on the loom. It is therefore to this tradition that we must look in order to understand the oldest and most enduring aspects of Li weaving

culture.



Fig. 4 Meifu Li loom with partly woven cloth (a headscarf). Loom components (from the left) comprise a woven backstrap, a pair of cloth beams, a weft-beater, tabby heddle and a shed rod, several sticks retaining shed openings, a coil rod and a paddle shaped warp beam. On older looms such as this one the warp beam is decorated with carved geometric designs. Above the loom: a shuttle (left) and a spare shed rod (right). A loom set normally includes a pair of identical cloth beams, as in this example: these may be used singly for a short length of cloth, or they may be used as a pair to clamp and wind the excess length of warp/web for weaving longer pieces of cloth. He Haiyan collection.

Headcloths of various types were (and still are) worn by the Li. These could be plain indigo, or decorated with supplementary weft or embroidery. Clothing was also occasionally made of (non-woven) beaten bark, though the use of bark cloth seems to have become rare by the beginning of the twentieth century.

The Li Loom

The backstrap looms used by Li weavers are all of very simple type and share some basic features (Fig. 4):

1. A flexible woven strap that secures the cloth beam behind the weaver's back.
2. A circular warp stretched between the cloth beam and a warp beam that is braced with the feet.
3. The woven cloth is correspondingly circular, until it is taken off the

loom and cut.

4. A simple shedding mechanism is used to create tabby weave, consisting of a stick to open the natural shed and spiral-wound heddle to open the counter-shed.

5. A coil rod is used, installed near to the warp beam. The coil rod keeps the warps in order and evenly spaced, and helps prevent tangling when the loom is rolled up after use.

With this type of loom, lacking a reed, the warp is closely wound without gaps between windings. The weave that is produced tends to be (correspondingly) warp-faced.

Despite the simplicity of the loom, the decorative techniques that the Li employ encompass a wide range: warp ikat, warp patterning, supplementary weft, twining and embroidery, supplemented with beads, seeds, coins and decorative joining stitches. It is common to find several techniques used together on one piece of cloth. Much of Li weaving is oriented towards achieving maximum decorative effect with small amounts of precious silk (and sometimes cotton) on ground-weaves made of cheaper and more plentiful bast fibre and cotton, usually dyed a dark indigo colour.

It has been said that the cloth that can be woven on a foot-braced loom is limited in length to the distance between the weaver's waist and feet. This is true of some cloths woven on Hainan, particularly short lengths woven for tubeskirts. However Li weavers readily circumvent this length restriction (when needed) by clamping the warp between two breast beams and winding the web around them a few times, in order to weave longer cloths. This technique was employed for weaving longer strips for making blankets, long coats and other uses.

The Li loom appears very different, at first sight, from the more elaborate frame looms used by some mainland groups, but as we will discuss in the final chapter of this book, it shares important features with mainland frame looms, and has a common origin.

Fibres and yarn preparation

The Li traditionally used locally grown bast fibres of various kinds, and locally-grown perennial cotton. Of these two, bast fibre has the longer history, cotton having been introduced from regions to the west, probably around the same time that it reached southern China (around the tenth century, becoming widespread by the thirteenth century).¹ Bast fibre seems to have been in regular use until the early part of the twentieth century, particularly in more remote parts of Hainan. Some clothing was originally made entirely using bast, such

as the tubeskirt in Fig. 5. This old textile gives some idea of what Li clothing styles may have looked like prior to the introduction of cotton. Colours were restricted to indigo and a few shades of brown and yellow, and decoration was mainly warp patterning, ikat and supplementary weft, with some decorative stitching. Embroidery seems to have become more important during nineteenth and twentieth centuries, stimulated by the availability of imported decorative yarns, particularly silk.

Cotton seems to have been preferred over bast fibre, by weavers who could cultivate it or buy it, for its superior softness and whiteness. Bast-fibre tubeskirts for daily use were sometimes decorated with small amounts of dyed or white cotton, either woven into the cloth as ikat decoration or as supplementary weft, suggesting that their makers regarded cotton as a precious fibre, in a relative sense at least. Skirts for festival or ceremonial use were usually made entirely of cotton, sometimes with supplementary weft decoration in silk, an indication of the higher status of these materials for Li weavers.

Cotton fibres were spun in the true sense of the term, whereas bast fibres were merely given a light twist. For spinning/twisting yarn a drop spindle was used. This consists of a rod with a small hook and cylindrical or cone-shaped weight at one end. It was suspended with the weight at the top, the spun thread accumulating on the rod just below the weight. In this respect the Hainan spindle is different to most spindles in use in Asia, in which the weight is located at the base.

A small foot-operated spinning wheel was also used for cotton yarns, together with a hand-cranked gin for separating seeds from cotton. Both devices were presumably introduced from the mainland at the same time as the cotton plant.

The majority of Hainan yarn, both cotton and bast fibres, are spun or twisted with Z torsion. Bast fibre is occasionally found with S torsion. In recent decades most Li weavers have switched to using commercially made, pre-dyed yarns.

Weaving for personal use is much diminished in Hainan today, and traditional dress is rarely worn in daily life, but a combination of government sponsorship at 'demonstration workshops' and production for tourist souvenirs has kept traditional skills alive. In 2009 Hainan weaving received UNESCO recognition as an Intangible Cultural Heritage, and Li weavers frequently travel to handicrafts exhibitions in China and abroad. A few Hainan weavers still produce handspun yarn dyed with natural dyes for demonstration purposes.

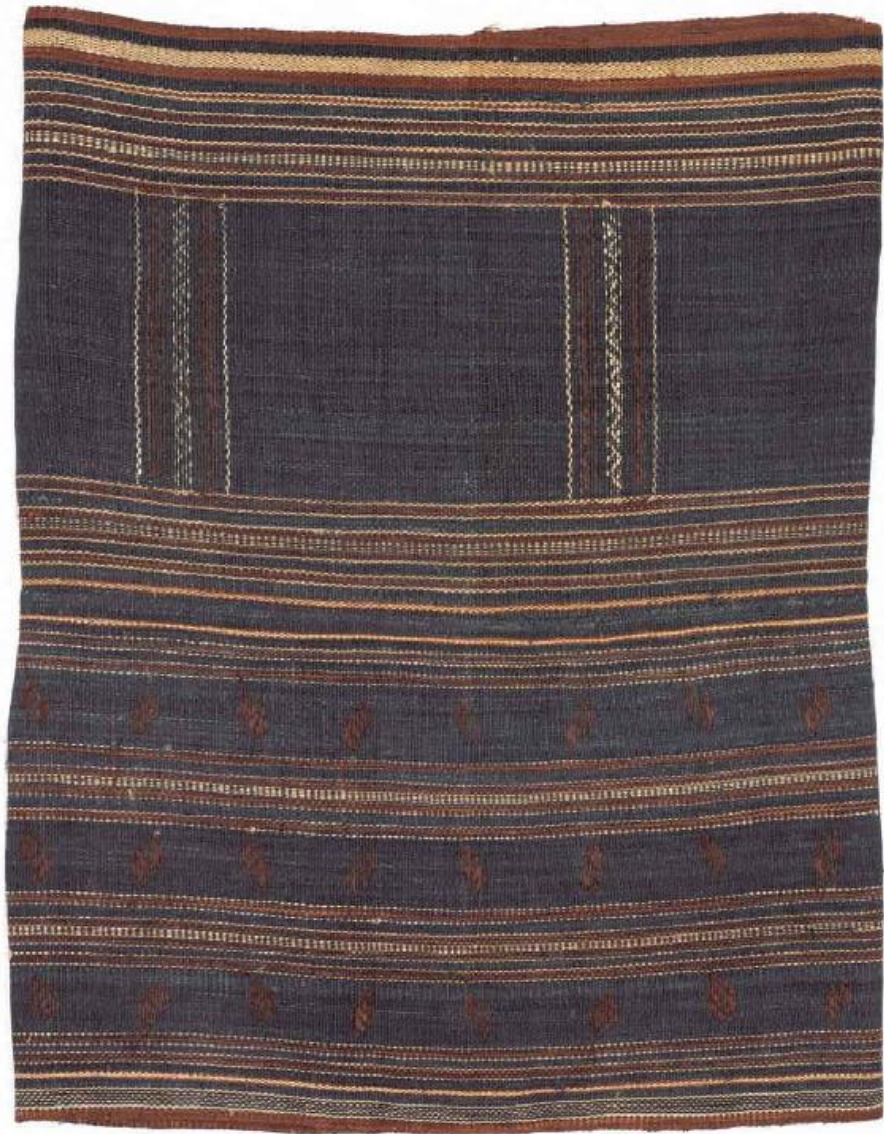


Fig. 5 Tubekirt made by a Li weaver from the Qi subgroup, nineteenth century or earlier. 49 cm × 62 cm. Indigo and other natural dyes. This skirt is made entirely of bast fibre, lightly twisted to make yarn. This includes the warp stripes and decoration (running horizontally in the photograph) and the supplementary weft decorating the indigo blue sections. The skirt has a stiff and brittle feel, quite unlike cotton. The use of bast fibre seems to have diminished during the early part of the twentieth century, as cotton and silk became more readily available to Hainan weavers. Private collection.



Fig. 1 Ceremonial tubeskirt made by Meifu Li people, Changjiang area. The skirt is composed of five panels: four decorated with ikat, one with supplementary wefts. Skirts of this type were typically worn by unmarried women on festival days and special occasions. They were worn in the orientation shown in this photograph, displaying the decorative silk band to maximum effect, the other end of the skirt being folded over to secure it at the

waist. Ikat: handspun cotton and indigo dye. Supplementary wefts: cotton and silk floss on white cotton ground-weave. 85 cm × 60 cm. Nineteenth or early twentieth century. He Haiyan collection.

5.4 Meifu Li weaving in Donghezhen

The weavers in this area belong to the group that ethnologists call Meifu (Moi fau) Li. The most distinctive features of their clothing are large and striking indigo blue sarongs decorated with warp ikat. These are worn with a plain, dark blue jacket with white edging and a small amount of embroidery or decorative stitching. The jacket and ikat skirt are worn with a headscarf (Fig. 3). Elaborate embroidered headscarves for wedding and ceremonial use were produced during the nineteenth century and the first quarter of the twentieth century, though their production seems to have declined after that time.



Fig. 2 Detail of a supplementary weft panel from a Meifu Li tubeskirt, with anthropomorphic motifs (a photo of the complete skirt appears in the frontmatter). He Haiyan collection.

Most Meifu Li headscarves worn today are decorated simply with bands of blue and white. Tubeskirts for daily use and those for married women were traditionally decorated only with ikat, but the festival tubeskirts of unmarried women were adorned with a decorative band of colourful supplementary weft (Fig. 1).

Both ikat and supplementary weft bands are woven on the same loom, with minor modifications. The Meifu Li ikat tradition is of great importance for understanding the history of weaving in Asia, since it is the only remaining complex warp-ikat tradition amongst the Daic language speaking groups [Buckley 2014]. Other Daic speakers in Southeast Asia appear to have switched to making weftfaced and weft-patterned textiles under the influence of new techniques and looms [Gittinger and Lefferts 1992]. A few mainland Tai groups still produce warp ikat, but this is restricted to simple dots and dashes [Howard 2010]. The warp beam of the loom from this area has distinctive, flat paddle-shaped ends. These are sometimes decorated with lightly incised geometric designs (Section 5.3, Fig. 4). These warp beams

seem to be a unique feature of Meifu Li looms: those from other areas generally use a plain round cane or rod as a warp beam.

A government-run workshop, the Donghezhen Brocade Company, maintains traditional Meifu textile skills, including cotton-spinning, natural dyeing and weaving. The lead weaver is Fu Qingshang, with two other experienced weavers working with her. The items they produce are mainly sashes with ikat patterning: the sash is a non-traditional form invented recently for gift-giving, but the motifs are traditional. Another group of weavers, led by Fu Baimading, is based at Xifang village a few kilometres away. The traditional product (the warp ikat tubeskirt) is rarely, if ever, produced today due to the length of time required and the correspondingly high cost.

Before weaving, warp is wound onto a frame and tied with strips of blue coloured plastic that act as a resist (Fig. 6). This technique is similar to that used by Austronesian weavers in the Philippines and East Indonesia for making warp ikat. After tying-on the resists, the ikat is dyed with several dips in indigo: the resists are then removed leaving the white design on a dark blue background. The warp is then untangled (a time-consuming job) and mounted on the loom.



Fig. 3 Headscarf decorated with floral and abstract motifs in supplementary wefts, augmented with embroidery. Imported silk yarn on handspun cotton foundation. Nineteenth or early twentieth century. 128 cm × 25 cm. He Haiyan collection.



Fig. 4 Meifu Li tubeskirt, early part of the twentieth century. Composed of four panels decorated with ikat and one with supplementary wefts. Cotton, 90 cm × 58 cm. He Haiyan collection.



Fig. 5 (Right and above) details of supplementary weft bands from Meifu Li ceremonial tubesskirts. Skirts with colourful supplementary weft bands were mainly worn by unmarried women. Motifs are structured around linked bands of diamond shapes, related in a general way to the motifs in Tai tubeskirts from mainland Southeast Asia. Silk and cotton supplementary wefts on cotton foundations.

The loom for making ikat cloth (Figs. 7 and 8) is one of the most basic found on Hainan, since the weaver is producing tabby ground weave, sometimes with some simple warp patterning at the edges of the cloth. In addition to the components listed in the introduction to this section, the warp also includes a few sticks near to the warp beam that are used for adjusting the tension on individual warps or sections of

warp, to keep an even tension at the web. The shuttle is a small stick with yarn wound around it in a circular fashion.

In principle, weaving plain tabby can be quite fast. In practice, progress with ikat-dyed cloth is slow because the warp yarns must be painstakingly re-aligned using a pin every two or three weft insertions, in order to keep the ikat design sharp and clear. This process of warp alignment takes up more time than any other activity during weaving.



Fig. 6 Tying resists onto warp prior to dyeing, for making warp ikat decoration. The weaver's skirt is a contemporary version of the ceremonial tubeskirt. Tellingly, it lacks the time-consuming ikat decoration, and is instead decorated with supplementary weft and

warp patterning, made from commercial yarns.

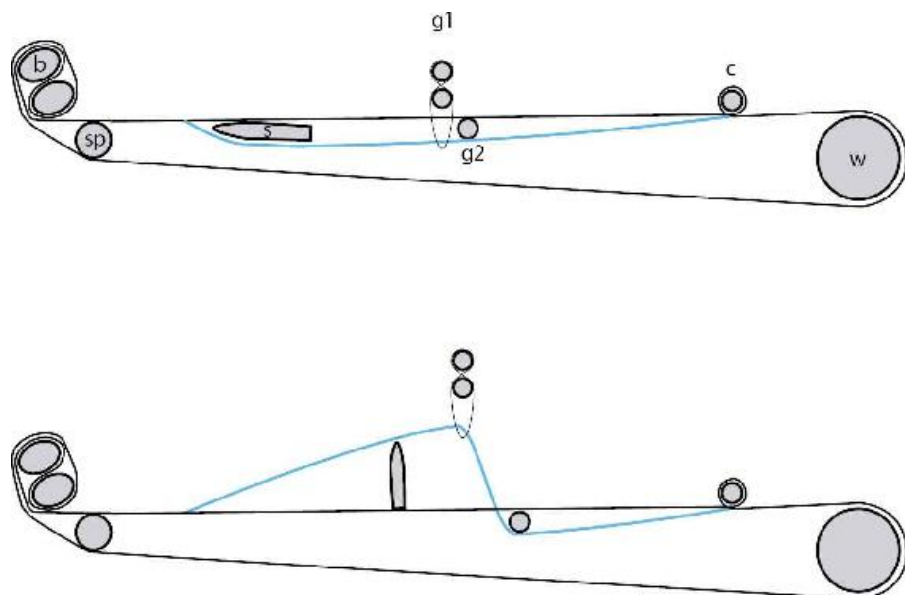


Fig. 7 Schematic drawing of the components of the Meifu Li loom in Fig 7. Sticks placed behind the coil rod for adjusting the tension of selected warps are omitted for clarity. Components: b: pair of breast beams, with cloth wound around them; sp: spacer rod; s: sword (weft beater); g1 and g2: tabby heddle and shed stick; c: coil rod; w: warp beam. Above: loom with natural shed open, with sword horizontal to beat down weft. Below: loom with counter-shed open, with sword turned on its edge to widen the shed created by the heddle g1.



Fig. 8 Meifu Li loom for weaving ikat-decorated cloth. The weaver is using a pin to re-align warp yarns with ikat decoration, to ensure the design stays crisp. A double breast-beam is employed, with the excess length of finished cloth wound around it.



Fig. 9 Detail of a Meifu Li headscarf. Silk and cotton on indigo cotton ground. Decorated with warp stripes (vertical orientation in this photograph), supplementary weft (geometric designs and stylized flowers), supplemented with embroidery and weft twining. Approximately 22 cm wide. He Haiyan collection.

Structural analysis

Meifu Li tubeskirt (Fig. 10).

1. Warp ikat and supplementary warp panels:

Weave: tabby, yarn count: 14 warps, 8 wefts per cm.

Warps: dark blue cotton, with ikat decoration, Z-spun, 2-ply.

Wefts: dark blue cotton, Z-spun, single ply.

2. Supplementary weft panel:

Yarn count: 12 warps, 6 ground wefts (paired), 6 pattern wefts per cm.

Warps: white cotton, Z-spun, single-ply.

Ground wefts: dark blue cotton, Z-spun, 2-ply.

Pattern wefts: unspun silk (pink, yellow, pale blue), single ply.

For weaving decorative supplementary weft bands (Fig. 5) which consist of coloured silk or cotton supplementary weft designs on a

white warp foundation, the loom used is the same, except that a square-section wooden block is inserted into the middle of the circular warp (Section 5.3, Fig. 3). This raises the working area slightly and gives a firm base for the weaver to work on, making it easier to pick up individual warps.

The pattern warps are picked up with a flat, pointed stick, and the short sections of discontinuous weft are inserted using simple stick shuttles with coloured thread wound on them. No other patterning aids are used. Designs are made from memory, or by copying an older textile.

Weavers from this area sometimes add warp-patterned stripes to the edges of their ikat panels. The patterns and the methods used for warp patterning are similar to those used by weavers in the Wuzhishan area for warp patterning (next section).



Fig. 10 Meifu Li tubeskirt consisting of five panels sewn together. The entire skirt measures 56 cm × 117 cm. Individual panels were between 18 cm and 28 cm wide on the loom. See technical analysis below. Private collection.

5.5 Qi Li weaving in Wuzhishan

This section is based on observations of weaving by a well-known local weaver, Huang Jixiang, who lives at Shuimianqiao village, near to Wuzhishan (Five Finger Mountain). Ethnologists classify the Li people in this area as belonging to the Qi subgroup. Huang weaves bands of cloth that are sold to tourists as decorative hangings, as well as bands of decorated cloth for making festive sarongs for her own use (Fig. 1). She uses commercial cotton thread, in contrast to the handspun and naturally dyed cotton and silk that would have been used in the past. Despite the change in yarn type, the loom and techniques are the same as those used in former times. Her weavings incorporate both discontinuous supplementary weft motifs and narrow bands of warp patterning. Accordingly, the loom arrangement is somewhat more complex than that used by Meifu Li weavers at Donghezhen (Figs. 2, 3, 4).

As with the Donghezhen loom, a shed stick is used together with a spiral-wound heddle to open the tabby ground weave shed and counter-shed, inserting black cotton weft using a large shuttle consisting of a stick with the weft wound lengthways. Behind the main heddle there are some additional sticks and two additional heddles. These are used to separate out subsets of warp that are used for supplementary weft insertion and warp patterning.

Supplementary weft insertion is done using a pair of flat, pointed pickup sticks, with the natural shed open and the sword brought forward.

Selecting the warps is done in two stages (Figs. 2 and 3):

1. The first pickup stick is used to select a group of warps (one out of four, regularly spaced) in the region of the cloth that will have supplementary weft added. This group is saved on a stick behind the main heddle, so that the pickup stick can be rapidly inserted by raising it. This group serves as a guide, which makes subsequent counting and selecting of warps faster and easier.
2. The second pickup stick is then used to select the group of warps for supplementary weft insertion: this stage is slower since the weaver must count warps to pick out the pattern. The warps that are selected are not restricted to the set on the first pickup stick, warps below this set may also be included. The second pickup stick

is then turned on its edge to open the shed, and a length of pattern weft is inserted using the fingers. The two sticks are then removed. A length of ground weft is inserted using the sword and shed stick as in Meifu Li weaving. The process is repeated, alternating between ground weft (black) and supplementary weft (coloured), producing a weft-patterned result with the structure shown in Fig. 5. A similar technique was used to decorate the old tubeskirt in Fig. 6.

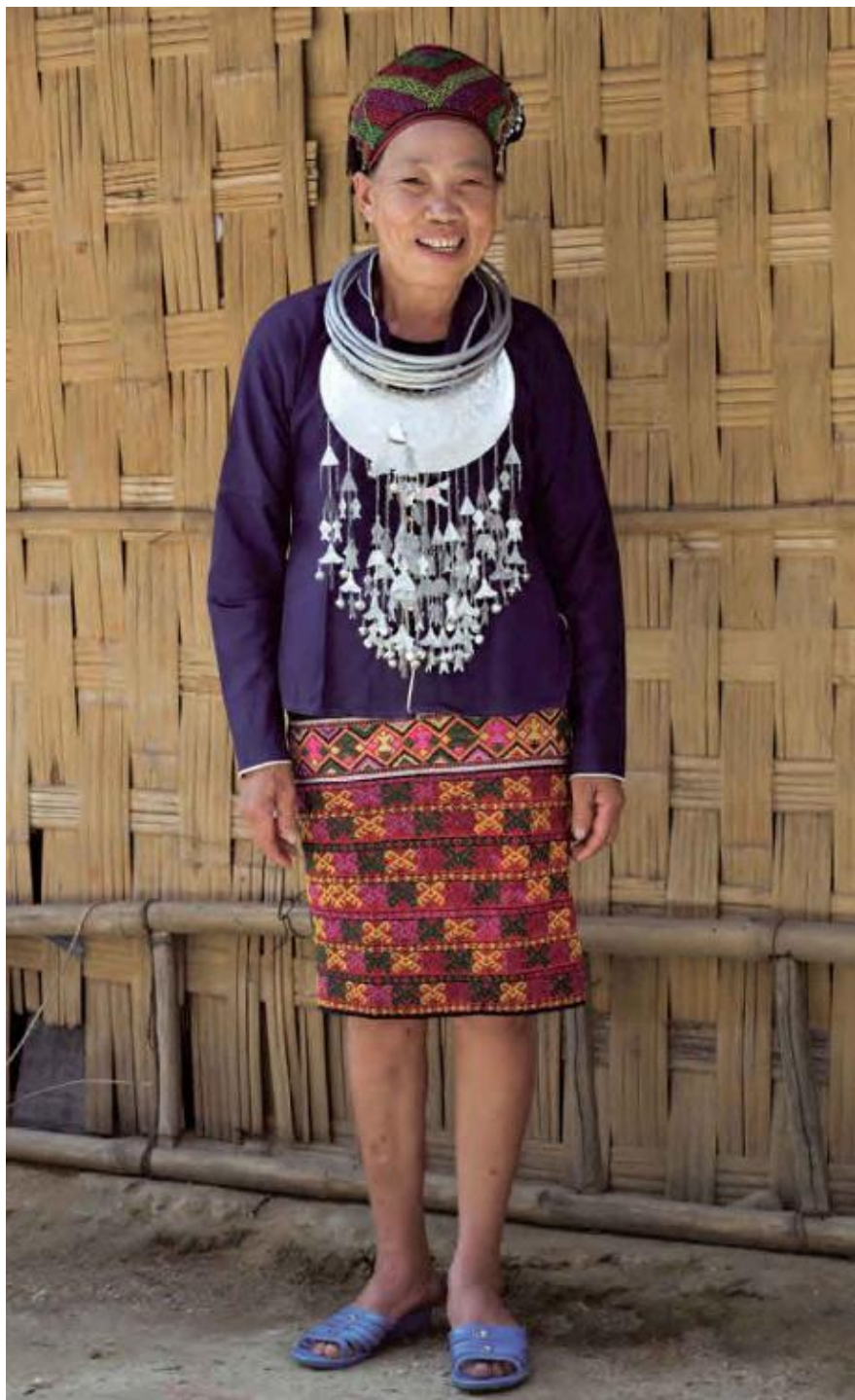


Fig. 1 Huang Jixiang, a Qi weaver living in Shuimianqiao village, wearing her festival costume, including embroidered headscarf, plain indigo jacket and silver jewellery, and a sarong made of panels decorated with supplementary weft. The techniques used to decorate the sarong, and the motifs, are the same as in older skirts from this area, though

the colours have changed dramatically due to the adoption of commercial pre-dyed yarns by contemporary Li weavers.



Figs. 2 and 3. Huang's backstrap loom. She is weaving a textile that includes both warp-

patterned stripes (narrow bands at the edges) and supplementary weft motifs (wider sections). She uses the pickup stick in her left hand to pick out a regular series of warps (one in four) which serves as an aid to counting and selecting warps for patterning, and the pickup stick in her right hand to pick up individual warps for patterning.

Warp patterning is added at the same time, using a different system. There are two additional pattern heddles (p1 and p2 in Fig. 4) on either side of the main heddle, and two pattern rods (p3 and p4). These are used (in combination with the tabby heddle and shed stick) to select coloured warps, at the same time as the ground weft is being inserted.

By using different combinations of these rods and heddles in sequence, simple twill-like designs (herringbone, diamond) can be produced, using coloured warps, which float over the ground wefts. In the example shown in Figs. 2 and 3, and the woven structure diagram Fig. 5, a single contrasting warp colour is used, but Hainan textiles commonly include more complex warp-patterned designs with two or three additional coloured warps (usually white, gold and brown), set against dark blue indigo ground warps.

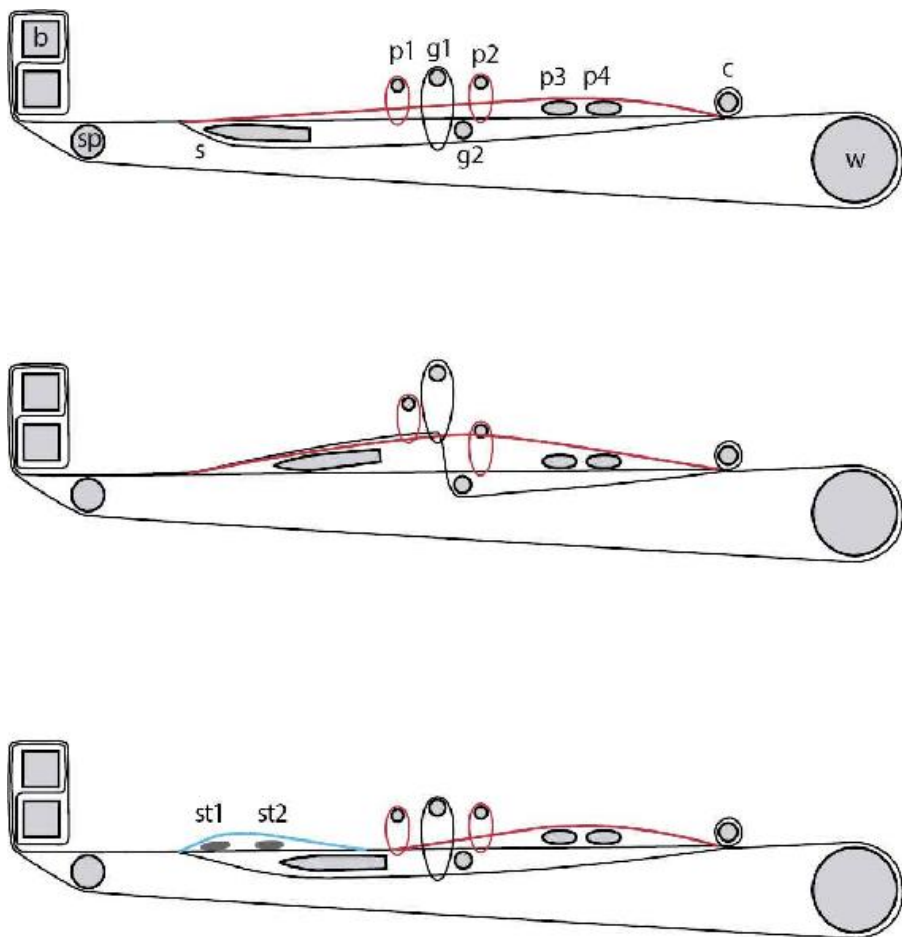


Fig. 4 Schematic drawing of the Wuzhishan backstrap loom. Components of the loom: b: cloth beam (pair of rods with cloth wound around); sp: spacer rod; s: sword (weft beater); g1 and g2: ground weave heddle and shed stick; p1, p2, p3, p4 heddles and shed sticks for warp patterning; c: coil rod; w: warp beam.

Top: loom arrangement with the natural shed open, sword horizontal to beat-in ground weave weft.

Middle: counter-shed open, one pattern heddle in use to raise one set of supplementary warps (coloured red) to create warp patterning.

Below: natural shed open, pair of pickup sticks (st1, st2) in use to add supplementary weft patterning.

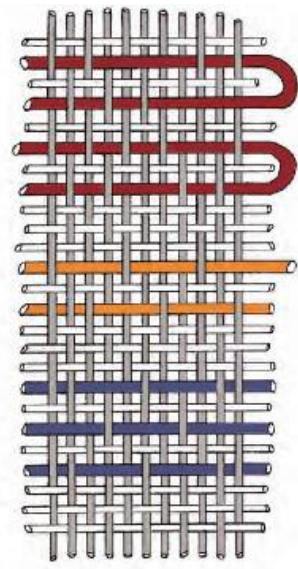
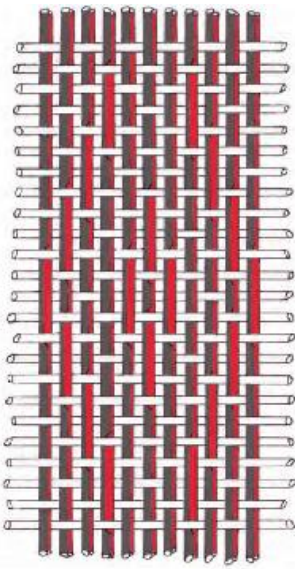


Fig. 5 Structure of the textile in Figs. 2 and 3.

Left: warp patterning: the warp consists of yarns of two colours: black (background) and red (pattern). The red/orange warps normally lie behind the black warps, but in the patterned areas they are brought to the front and float over groups of three wefts (actually black, shown in white in the drawing).

Right: weft patterning lengths of discontinuous supplementary weft in various colours are added so that they lie above the ground wefts, floating over three or five warps.

Structural Analysis

Qi Li tubeskirt (Fig. 6).

Decorative techniques: warp patterning, warp ikat (between bands of warp patterning), supplementary weft.

Ground weave: plain tabby.

Thread count: 20 warps, 6 ground weave wefts, 6 supplementary wefts per cm.

Warp and ground-weave weft: cotton, single-ply, Z-spun. Mainly dyed with indigo, with a few white and dark brown warps.

Supplementary weft: single ply, unspun silk floss. Probably dyed with lac.

There are some additional sticks in the loom near to the warp beam that are used for adjusting tension, particularly in the coloured warp

yarns that are used for patterning. The extra coloured warps need some additional length, which is wound around some small rods and let out as needed (Fig. 2: narrow stick closest to the warp beam).

There are a number of different variations on this system, depending on the complexity of the pattern that is being woven. Li et al [2007] recorded a version of this technique using three pickup sticks. There is also considerable variation in the layout of woven motifs amongst Qi Li weavers from different areas.

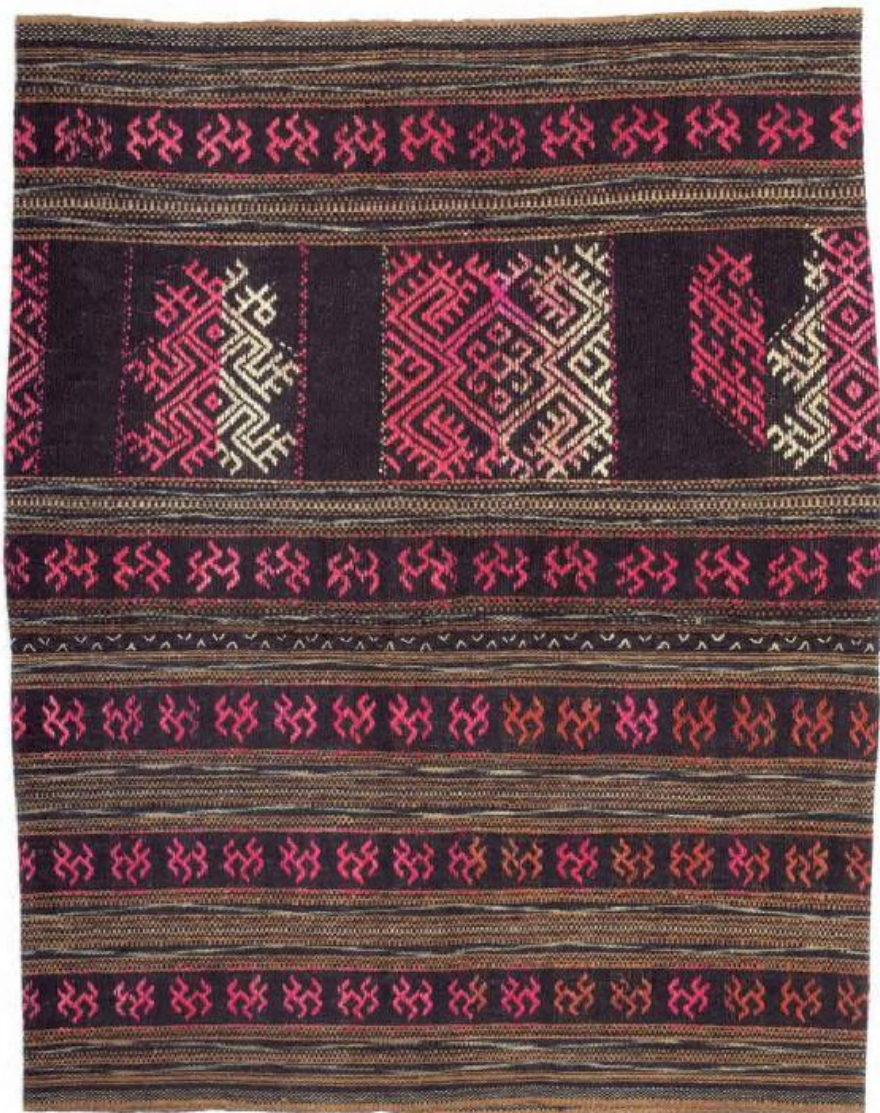


Fig. 6 Qi Li tubeskirt decorated with supplementary weft, warp patterning and warp ikat. Made up of two panels sewn together, woven using a cotton foundation and silk supplementary weft, 48 cm × 61 cm, early part of the twentieth century. The seemingly

‘random’ colour changes are a common feature of the decoration on this type of skirt. A similar skirt appears in Stübel’s account, where is described incorrectly as ‘Meifu Li’ [Stübel 1937 Pl. 251, 252]. Private collection.

5.6 Ha Li weaving

Li people from the Ledong area (classified as belonging to the Ha subgroup by ethnologists) make distinctive tubeskirts decorated with discontinuous supplementary weft motifs, using red, brown and white silk against a dark blue indigo cotton ground. These are worn with a plain indigo jacket, or with a jacket with embroidered decoration.

As with other Li tubeskirts, the skirts are woven in narrow strips and sewn together. The loom that is used is yet another variant of the basic Hainan backstrap loom (Figs. 1 and 4). In addition to the ground weave heddle, around 10–20 pattern heddles are inserted in the warp. These are kept together in a group between the coil rod and the ground-weave heddle, and raised one by one as needed to make sheds for insertion of supplementary weft. As each heddle is raised, a flat blade is inserted and then turned on its edge to widen the shed opening. Since the lengths of discontinuous silk warp are relatively short they are usually inserted with the fingers rather than by using a shuttle.

The pattern heddles take considerable time to prepare, but once set-up the weaving proceeds faster than using a hook or pick-up stick. This method is similar to that used by backstrap loom weavers in Lombok, Sumatra and parts of Malaysia to weave supplementary weft designs. It is also similar in principle to that used by Daic peoples to weave supplementary weft on more complex frame looms, such as Zhuang weavers in the Jingxi region (Section 5.22). It is one of the simplest forms of pattern saving system.

As with the Qi subgroup, the Ha Li are quite diverse, with different skirt styles in different areas, though small repeated supplementary weft motifs predominate in most Ha weaving. Weavers in Dongfang county (inland from Dongfang town on the coast) make impressive ceremonial skirts with small supplementary weft motifs that are finished by outlining them in silk embroidery (Figs. 2, 5 and 7).



Fig. 1 Pattern recording device, for preserving the warp lifts and ordering of a set of pattern heddles used on a loom such as that in Fig. 4. He Haiyan collection.



Fig. 2 Detail of a frieze of human figures on a ceremonial tubeskirt, supplementary weft and embroidery (detail of Fig. 7).



Fig. 3 Stylized human figures on a detail from a ceremonial tubeskirt from the Ledong area, silk and cotton discontinuous supplementary weft on an indigo cotton ground.

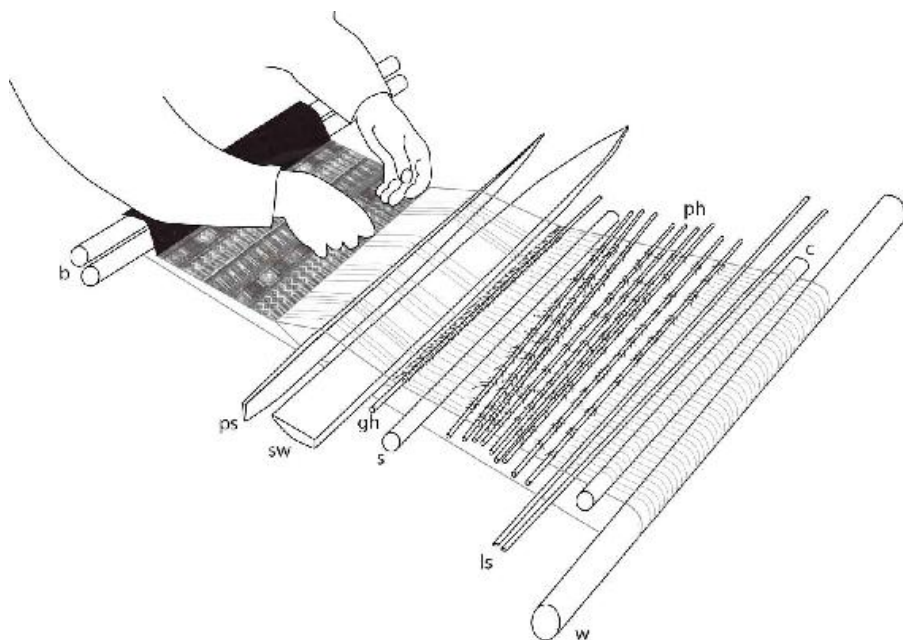


Fig. 4 Drawing of the loom used by Ha Li weavers from the Ledong area to weave cloth with supplementary weft motifs in white and brown silk or cotton on an indigo cotton ground, such as the one in Fig. 6. A set of pattern heddles (ph) is used to raise warps in sequence. The shed created by each heddle is widened by using a pointed pattern stick (ps) before inserting the supplementary weft. Other loom components: b: pair of breast beams with cloth wound around them, sw: sword, gh: heddle used for creating ground weave (tabby), s: shed stick associated with ground weave heddle, ls: pair of lease rods, c: coil rod, w: warp beam, braced with the feet.

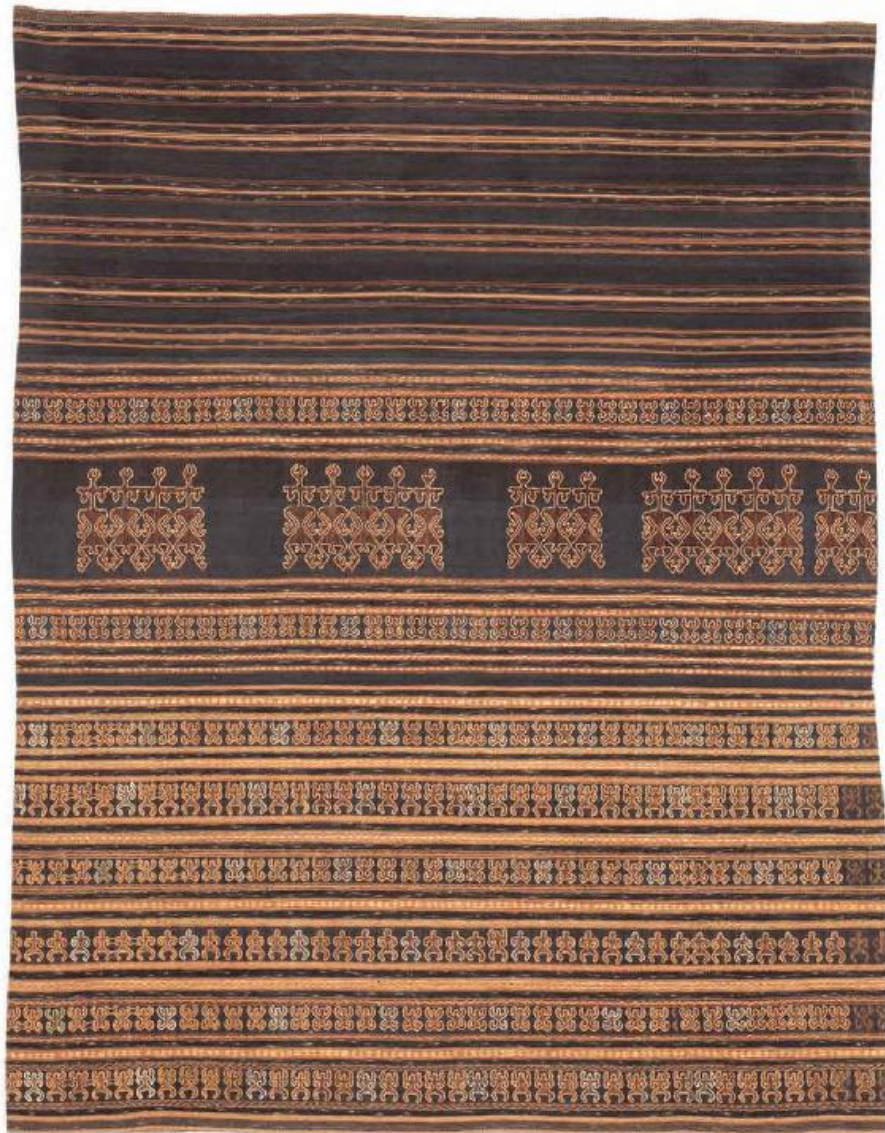


Fig. 5 Ha Li ceremonial tubeskirt, 85 cm $\times$ 64 cm. Silk and cotton discontinuous supplementary weft motifs, consisting of rows of stylized human figures, outlined by embroidering in silk, on a dark indigo cotton ground. The groundweave of these skirts is made of fine handspun cotton: the very dark, almost black shade was probably achieved by dyeing in indigo then overdyeing using a bark and mud combination. Most of the groundweave sections include small warp ikat dashes. Nineteenth century. Private collection.

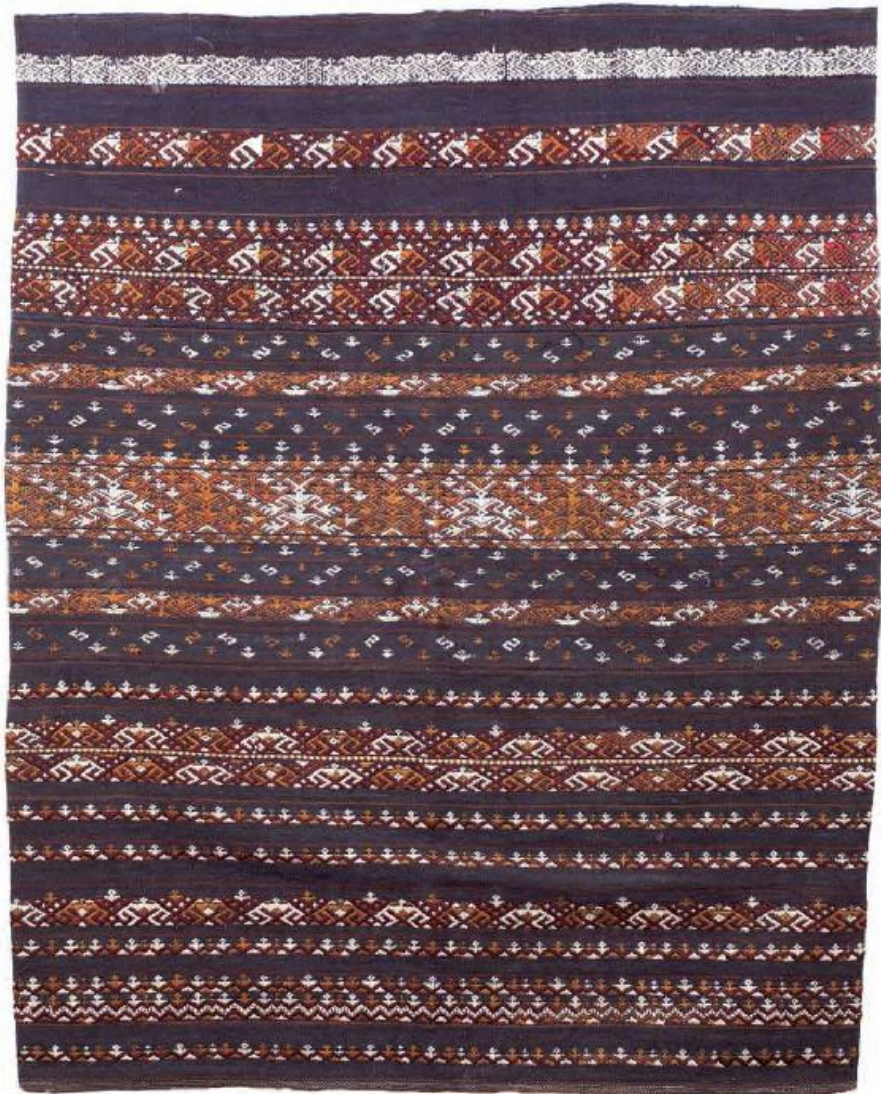


Fig. 6 Ceremonial tubeskirt made by a Ha subgroup weaver from the Ledong area. Woven in three panels. 57cm × 72cm. Silk supplementary wefts on indigo cotton groundweave. First half of the twentieth century. He Haiyan collection.

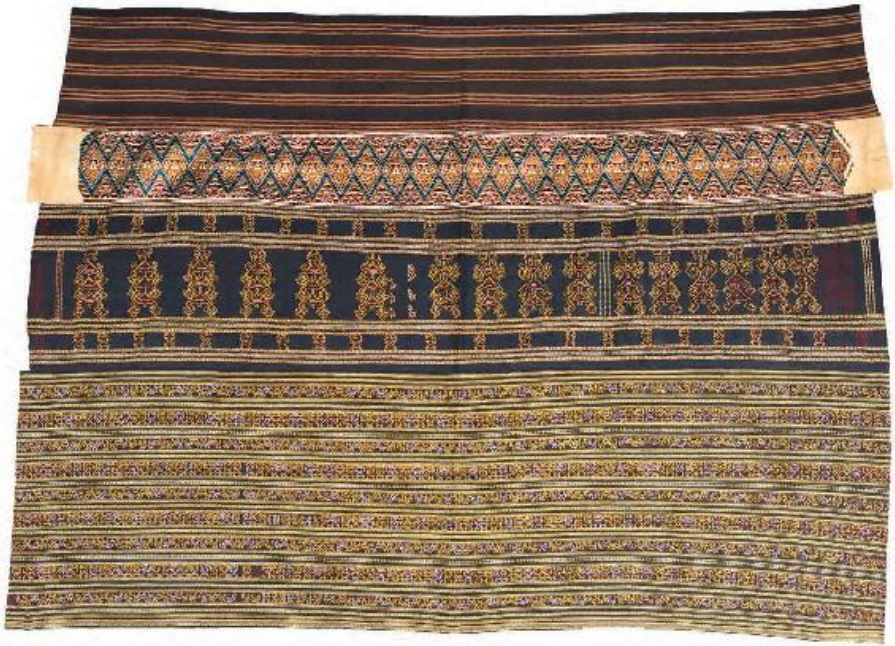


Fig. 7 Ha Li ceremonial tubeskirt, 152 cm × 108 cm (opened out). Brown silk supplementary wefts outlined with yellow and white silk embroidery, on a tabby cotton foundation. Some of the motifs at the edges of the panels lack embroidered edging, in these places the supplementary weft motifs can be seen more clearly. Below the waistband there is a panel decorated with continuous supplementary weft on a white ground, this is probably a twentieth century addition to a nineteenth century skirt. The waistband has some small warp ikat dashes in between warp-patterned stripes. He Haiyan collection.



Fig. 8 (Above) Ha Li burial cloth, 225 cm × 108 cm, silk supplementary wefts on cotton ground weave, natural dyes, nineteenth century. (Below) detail of the supplementary weft motifs, front and reverse sides of the cloth. He Haiyan collection.



Fig. 1 Tubeskirt made by Run Li weavers from the Baisha area (above), with a detail from the lower panel (below). This weaving is the most intricate of all Li weaving, though the techniques used are similar to those employed by other Li groups. The motifs include anthropomorphs and various mythological creatures. Silk and cotton supplementary wefts, cotton groundweave. Early part of the twentieth century. 38 cm × 27cm. He Haiyan collection.

5.7 Run Li weaving

Weavers belonging to the Run subgroup living in the Baisha (Ba Sa Dung) area traditionally wore tiny tubeskirts, composed of three or four bands. The top (waist) band is decorated with supplementary warp designs. The lower bands are decorated with supplementary weft, with a similar structure to that of Qi weavings, though on a smaller and finer scale. These are worn together with tunic-style jackets decorated with embroidery. Stübel reproduced several of these skirts and jackets in his account, as well as a photograph of a weaver making a narrow strip of supplementary weft decorated textile (Section 5.3, Fig. 3), and a set of carved and decorated weaving implements (Fig. 4).

The weaving technique employed to make these intricate skirts is very similar to that used by the Meifu Li weavers of Donghezhen to make supplementary weft brocade. The loom is of the most basic kind, and pattern warps are picked up entirely by hand. A square-section wooden block is inserted under the web to raise it up and give the weaver a firm base to work upon. Weavers produce the designs from memory, or keep an older cloth by their side for reference.

Given the simplicity of the technique, the workmanship of the finished cloth is astonishing. As mentioned in the Introduction, Run Li weavings are proof that the complexity of a finished textile is not limited in any way by the loom used to weave it, but by the patience and skill of the weaver.

As with Meifu and Ha weaving, these techniques are not widely used today, but are kept alive in a limited way by government sponsorship and demonstrations for tourists visiting Hainan. The processing and hand-spinning of local fibres has ceased however, and contemporary weavers use commercial yarns (Fig. 3).



Fig. 2 Detail from a Run Li tubeskirt, showing a large anthropomorph with several smaller figures inside. Front (above) and reverse (below) of the same portion of the cloth, showing the intricacy of the supplementary weft decoration. The tubeskirts are shown in the natural orientation in which they were worn, with the warp oriented along the horizontal.

The motifs in these skirts include diamond shapes decorated with hooks and ‘nested’ motifs, all of which are characteristic of Daic weavings, as well as other groups such as Miao-Yao and Austronesians. They are part of a common heritage of textile motifs in Southwest China and Southeast Asia. He Haiyan collection.



Fig. 3 A Run Li loom, including a length of recently-woven cloth with supplementary weft motifs. Loom components (from the left): three pickup sticks, cloth beam, ‘shuttles’ with white and coloured yarn, sword/weft beater, ground-weave heddle (red thread), shed stick (retaining the natural shed), various sticks selecting groups of warps, coil rod, warp beam. He Haiyan collection.



Fig. 4 Decorated Run Li loom parts collected by Stübel. From the top: shuttle, toolbox

(also serves as a support for the partly woven cloth during supplementary weft insertion), cloth beam, shed stick, pickup stick for selecting warps for patterning, weft beater (sword), woven backstrap. After Stübel [1937 Pl. 202].



Fig. 5 Run Li skirt, 40 cm × 32 cm, cotton and silk supplementary weft on cotton foundation. Early part of the twentieth century. He Haiyan collection.



Fig. 6 Detail of a Run Li skirt, showing supplementary weft motifs. He Haiyan collection.

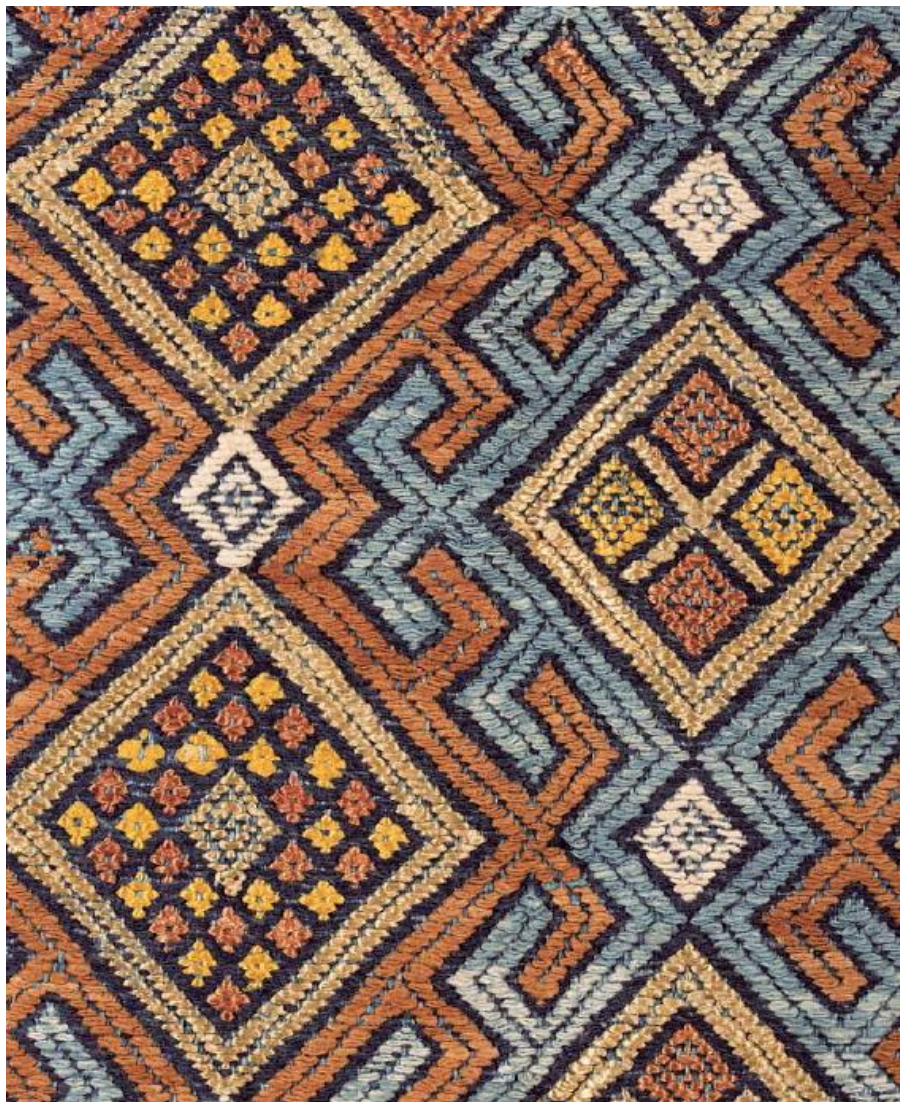


Fig. 1 Detail of a Buyi wedding bedcover from Qiannan in South Guizhou province (see Fig. 5 in Section 5.12).

5.8 The Buyi

The Buyi living in Guizhou province, who are linguistically very close to the Zhuang living in Guangxi and Yunnan provinces, used to be called Zhongjia.¹ Today there are about three million Buyi in Guizhou, distributed throughout the province.

The Buyi and Zhuang are believed to have formed part of the Bai Yue people who have been living in southern China for at least two millennia.² Some scholars relate the Buyi to the ancient Pu 濮 or Puliao³ tribes, which were described as early as 611 BCE under the name Bai Pu⁴ when they were said to be a scattered group of tribes living in the Chu Kingdom. The Pu are considered by some scholars to be one of the earliest aboriginal populations of Guizhou.

Omnipresent in the *baimiaotu* gazettes (published in the eighteenth and nineteenth century with texts and paintings depicting some of the ethnic groups living in Guizhou), the Buyi, under the name Zhongjia, appear to have lived in closer contact with the Han than their Miao neighbours. They do not seem to have played a significant role in the rebellions that took place in Guizhou during the last two centuries of the Qing dynasty.⁵

The Buyi people's brocade weaving shows a characteristic talent for the use of natural vegetable dyes on floss silk and cotton, with a palette of deep aqua-greens, warm reds, luminous yellows and indigo blues. In terms of design, they tend to stick to a conservative style, abstract and geometric motifs with few variations. This conservatism is linked to the use of pattern recording systems in some of their looms: such systems lend themselves to the accurate transmission of a limited number of designs from generation to generation.

Brocades are mostly used for wedding bedcovers, baby carrier panels, the decoration of woman's jackets (sleeve panels, collars) and headdresses.

¹ Using the characters 种家, later replaced by 仲家 substituting the animal radical in the first character with a more appropriate radical for 'person'.

² Lemoine [1978].

³ 濮僚.

4 百濮.

5 Jenks [1994].

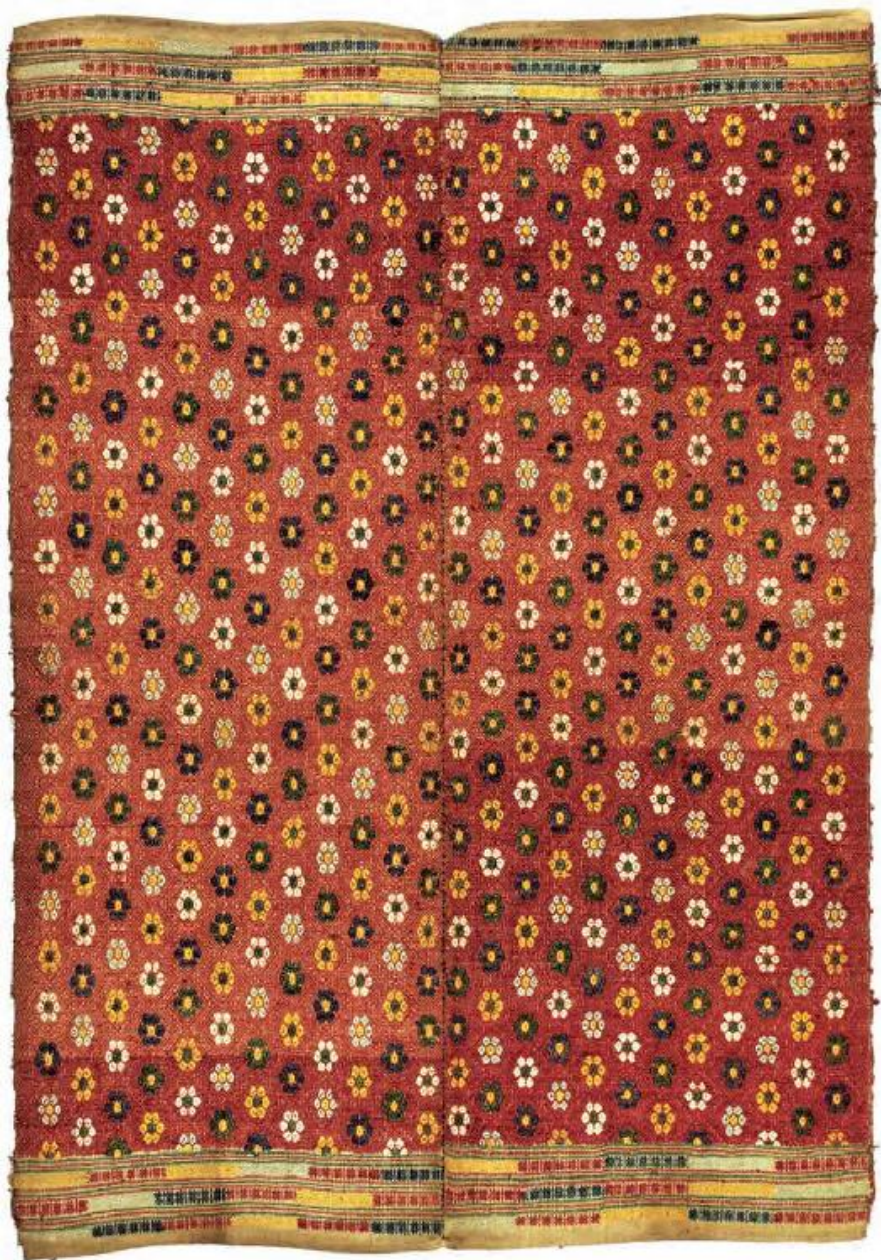


Fig. 1 Wedding bedcover from the Libo region, 105 cm × 79 cm, silk and cotton, natural dyes, mid-nineteenth century. This textile, decorated with stylised flowers set against a ground of red lozenges, is a superb example of the talents of Southwest China weavers in dyeing and colour composition. Louis Sébastien Ohl collection.

5.9 Buyi weaving in Libo

Kundi village, Jiarong district, Libo county, Guizhou province. 贵州省，荔波县，佳荣镇，坤地村. The village consists of about 70 households. Surveys conducted in August 2005 and November 2012.

This is a prosperous rice-farming area, by Guizhou standards, and is seldom visited by tourists. It is populated by a diverse mix, including Buyi, Shui, Miao, Maonan and Han people. Shui women still wear their traditional costume (in simplified form) on a day-to-day basis, while Buyi women seem to have completely abandoned traditional dress. The local Shui women are still involved in the weaving of tabby and twill fabric and in indigo dyeing of traditional cotton fabrics, and their handiwork can be seen for sale on local markets.

Qin Yinzhu, the weaver who we interviewed for this survey, is 45 years old; she started to learn brocade weaving at the age of 16. Qin can weave brocade if she has a set of pattern rods mounted on a loom, but she does not know how to build the pattern system herself. She says that this knowledge had disappeared by the time of her mother's generation. As one set of rods corresponds to one pattern, she can only weave that particular pattern. She is very careful to lock the door of the room where she is weaving in order to avoid children playing with the loom; if a child were to take out some of the rods, the design would be irretrievably lost.

By the time of our second visit in 2012, the younger generation appeared to have abandoned traditional brocade weaving. Looms have disappeared and even Qin no longer weaves on a regular basis, though she still has the loom in her home. This disappearance is particularly striking, as during previous surveys conducted in 2005, active looms were still relatively easy to find. Weavers said at the time that about a quarter of the households had a brocade loom in use; they also mentioned that every household had one as recently as the 1980s.

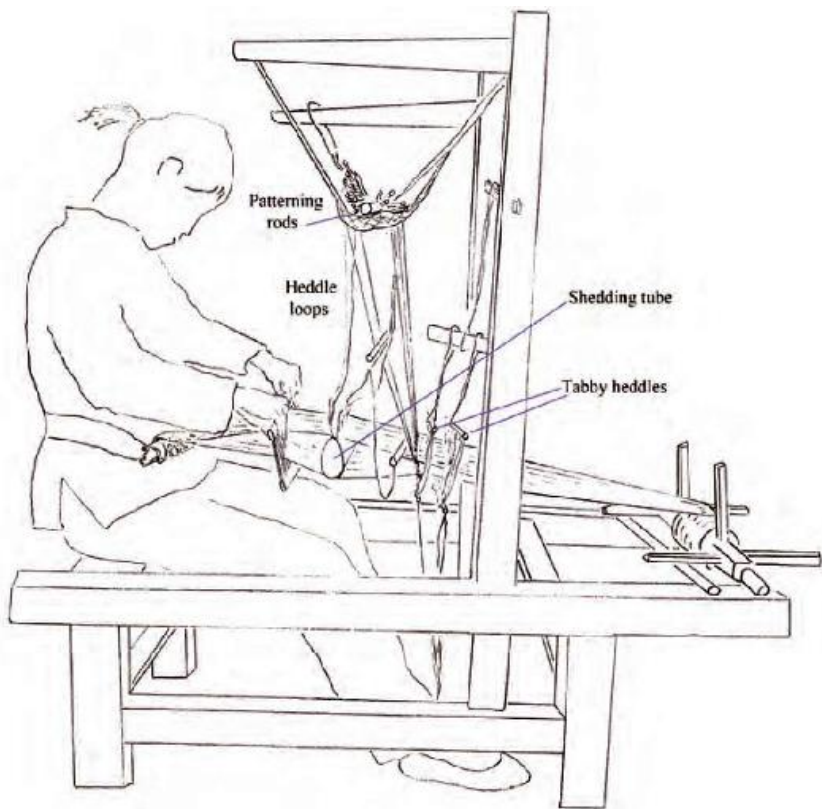


Fig. 2 Qin Yinzhu weaving at her loom in Kundi village.



Fig. 3 Patterning system: rods and heddle loops.

Loom characteristics

Number of warps: 306, including 12 (6 on each side) for the selvedge

Number of warps per reed space: 1

Brocade width: 25 to 33 cm

Beater-shuttle used for ground weft insertion and beating-in.

The material used for the yarn has gradually changed since the late 1980's. Home grown, hand-spun cotton yarns, which were used for the warps (indigo dyed), and ground wefts, have been replaced by commercial cotton or synthetic fibres. Home produced silk yarn, which was used for decorative supplementary wefts, has been replaced by industrial silk or synthetic fibres. In 2005 some older women were still using locally made cotton yarn while silk threads were already being bought from nearby markets or shops. Older women say that they preferred home grown cotton, as it was cheaper, stronger and more suitable for indigo dyeing. In 2005 we noticed that tree bark was still used to dye cotton fabric in a brownish-red colour, but this practice had completely disappeared by 2012.

Qin has no idea of the name or the significance of the pattern that she is weaving. An older woman in the village was able to name two out of six traditional motifs that we showed her: the *jinyinghua*¹ 'gold and silver' motif and the *tongqianhua*² 'copper coins' motif. She also said that all the Buyi of the area weave similar patterns, based on the same six elementary motifs.

Prior to her own wedding, Qin told us that she wove five brocaded bedcovers. She said that according to the local tradition, an uneven number of bedcovers was required for a wedding, usually three, five or seven. A mother was allowed to weave some of the bedcovers for her daughter's wedding trousseau. Older weavers told us that wedding bedcovers were rarely used. They were brought out for the wedding night and a few days or weeks thereafter; after that they were then carefully kept in a trunk and were taken out on rare occasions, such as when a 'distinguished visitor' slept in the house.



Fig. 4 The front row of the patterning heddle loops is selected; the patterning shed is maintained by a bamboo tube.

The loom

The Buyi in the Libo area use a back-tension frame loom, with two bidirectional suspended heddles for tabby weave, raised alternately by cords attached to the feet. The loom has a patterning system (*huaben*) made of 29 (can be up to 50) patterning rods, forming a rather loose, although carefully ordered, horizontal bunch hanging from two fixed supports in front of the weaver's head (Fig. 3).

As there are two heddles, there is no need for the shed stick that is found on looms with a single heddle. Qin says that the setting up of the warps on the loom takes a full day of work for three women.

Weaving technique

The reverse side of the brocade faces upwards when it is mounted on the loom. As noted, the patterns that are woven are all very similar within the village. They are simple, geometric shapes with reflection symmetry, with the axis of symmetry along the weft direction.



Fig. 5 Wedding bedcover, 140 cm × 122 cm, silk and cotton, nineteenth century. Private collection.

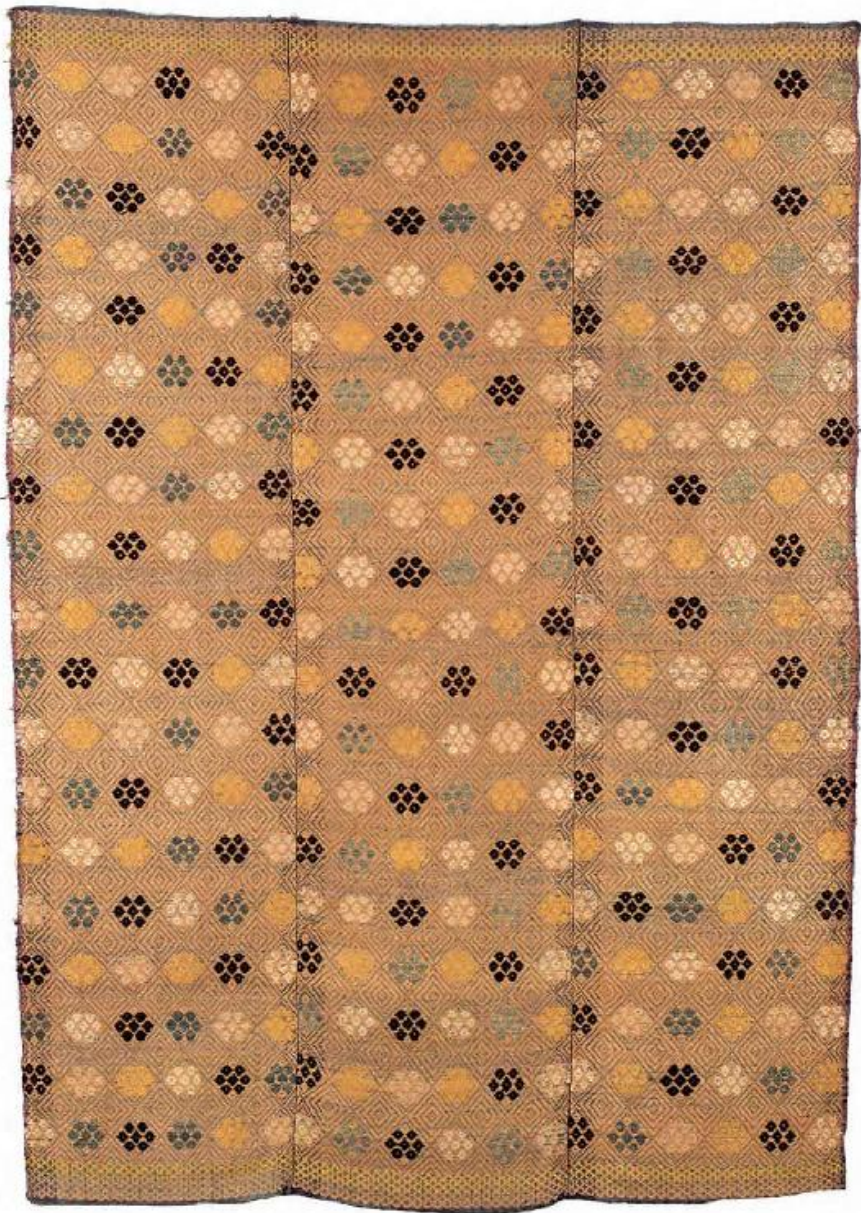




Fig. 6 (Top) Wedding bedcover, 135 cm × 93 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection. (Above) details of the front and reverse sides.



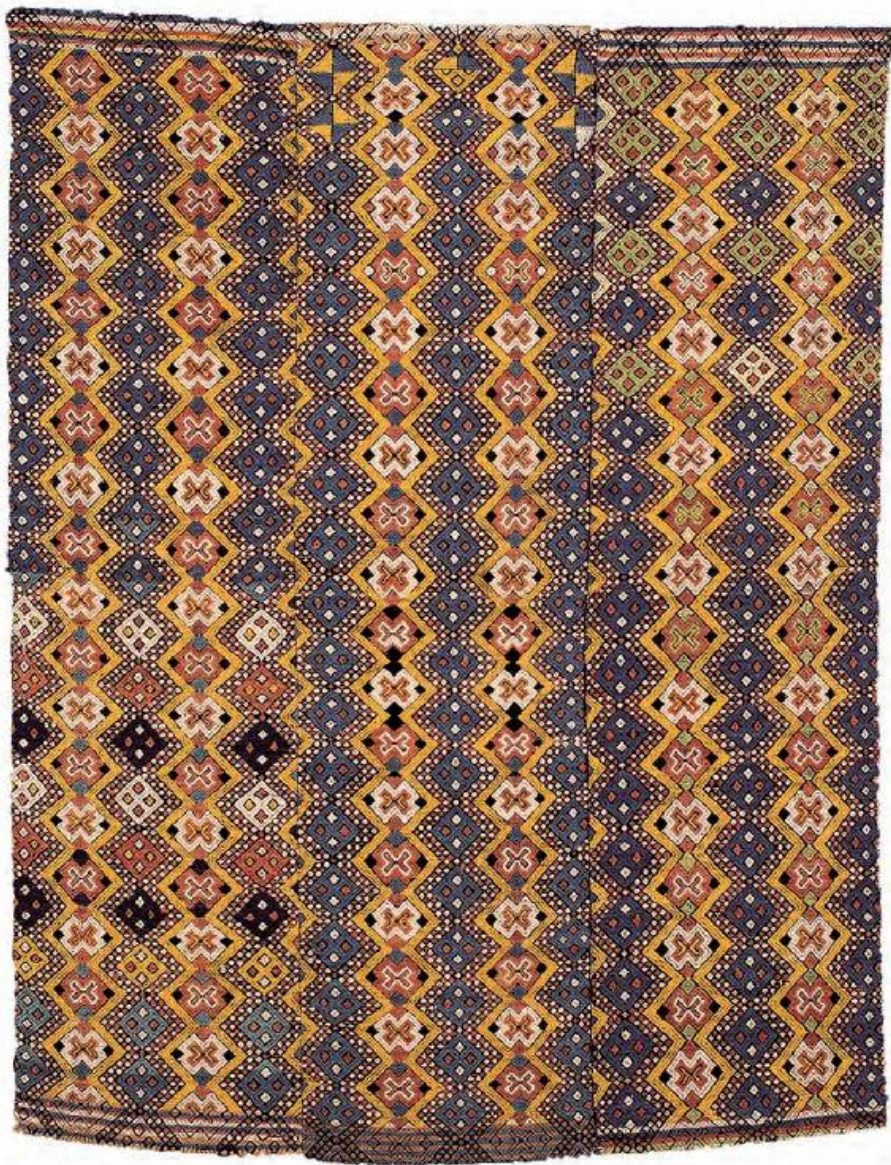


Fig. 7 (Top) wedding bedcover, 98 cm × 76 cm, silk floss and cotton, natural dyes, nineteenth century. He Haiyan Collection. (Above) details of the front and reverse sides.

Patterning rods are moved from the back to the front of the pattern heddle for one half of the pattern, then the direction is reversed for the remaining half (see Section 5.2 ‘Note on Daic Complex Pattern Heddles’).

The process described below applies to one half of a symmetric pattern, woven with pattern rods moving from the back to the front of the heddle (clockwise rotation).

The weaver takes down the patterning rod located at the back, while she leans forward to reduce the warp tension. Holding the rod with both hands and pulling it down, while moving it back and forth, the leashes are separated into two groups, one group at the back, one group at the front. The patterning rod that was located at the back is then replaced up at the front of the loom. The middle bamboo tube separating the two groups of leashes is pushed down in order to widen the back and front patterning sheds. A large bamboo tube is introduced in the shed created at the front, further separating the warps that are lifted up by the heddle leashes from the remainder (Fig. 4). The reed is then pushed back against the large bamboo tube in order to separate the warps more clearly. The discontinuous coloured supplementary wefts are introduced by hand in the shed held open by the bamboo tube (Fig. 8).

After beating-in the supplementary weft, the bamboo tube is removed and the next tabby weave heddle is raised. One or more rows of tabby ground wefts (up to 11 tabby rows between two rows of discontinuous supplementary wefts) are then inserted alternately in the natural shed and counter shed openings.

Qin says she used to be able to weave about two to three centimetres per hour. Other women said that they wove about ten centimetres in eight hours; it usually took them about a month to complete a wedding bedcover.



Fig. 8 Inserting the discontinuous supplementary wefts.



Details of Fig. 9 (facing page), front and reverse sides of the weaving.

Glossary of Terms

To weave: *dam*

Loom: *zheng*

Shuttle beater: *da ou*

Reed: *feng*

Patterning rod: *sei*

Warp (= weft): *mai*

Brocade: *na nian* (also used for brocaded bedcover)

Fabric: *bang*

Bamboo tube (large): *dong*

Back strap: *ra (ja)*

Heddle: *gao* (used for both tabby heddle and patterning heddle strings)



Fig. 9 Wedding bedcover, 94 cm × 79 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection.

Structural analysis

Supplementary weft compound tabby, used as a panel for a wedding bedcover, Mid twentieth century. Panel is 32.5 cm wide, pattern repeat: 6.5 cm (as it is made of 2 symmetrical halves, the set of pattern rods produces 3.25 cm). Thread count: 10 warps, 40 ground wefts per cm.

Warps: white cotton, 2-ply, parallel (no twist).

Ground weft: white cotton, single-ply, S-spun.

Supplementary wefts Type 1 (90% of supplementary wefts): silk floss in pink, yellow, purple (synthetic dyes)

Supplementary wefts Type 2 (10% of supplementary wefts): natural indigo dyed cotton, 4-ply, S-spun



Fig. 10 Weave structure. Left: detail; right: detail of reverse side.

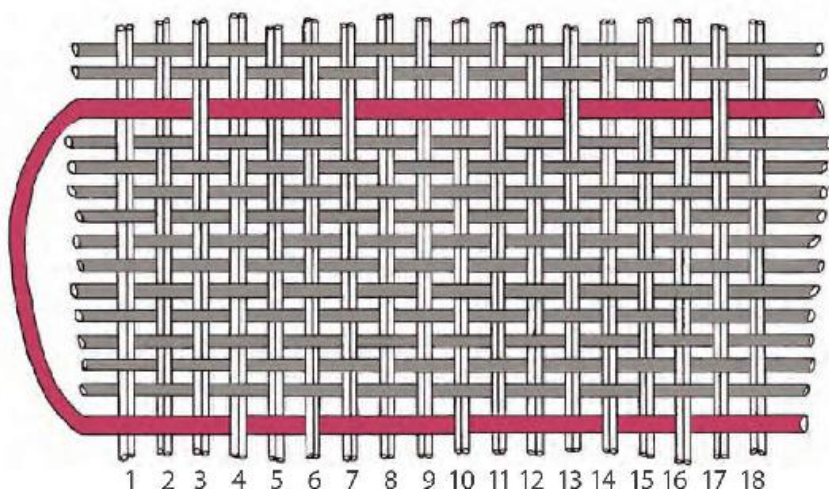


Fig. 11 Weave structure.



Fig. 12 Detail of Fig. 13.

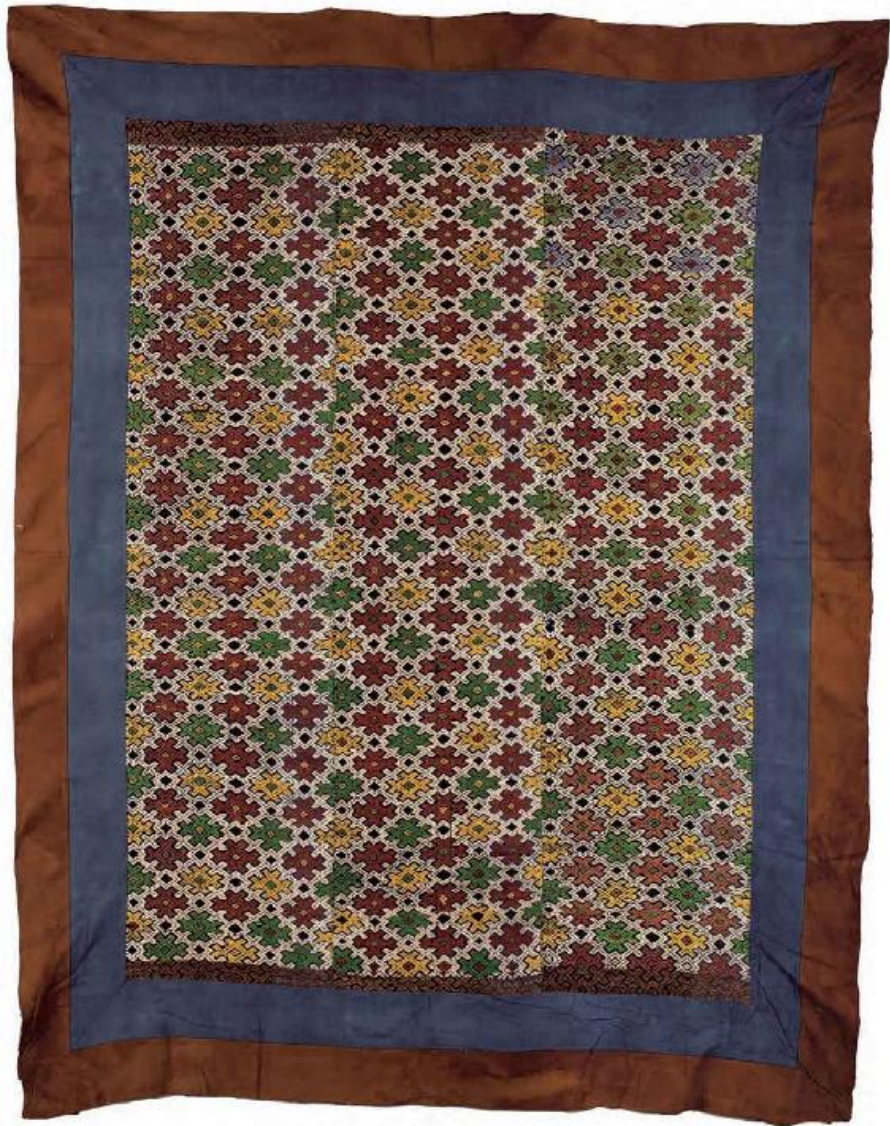


Fig. 13 Wedding bedcover, 125 cm × 92 cm, silk and cotton, natural (yellow, red, brown) and synthetic (green) dyes, mid twentieth century. The 'well' motif on this bedcover is one of the most popular patterns amongst Buyi weavers in Libo district. He Haiyan collection.



Fig. 14 Detail of the front (above) and reverse side (below) of the bedcover in Fig. 15.

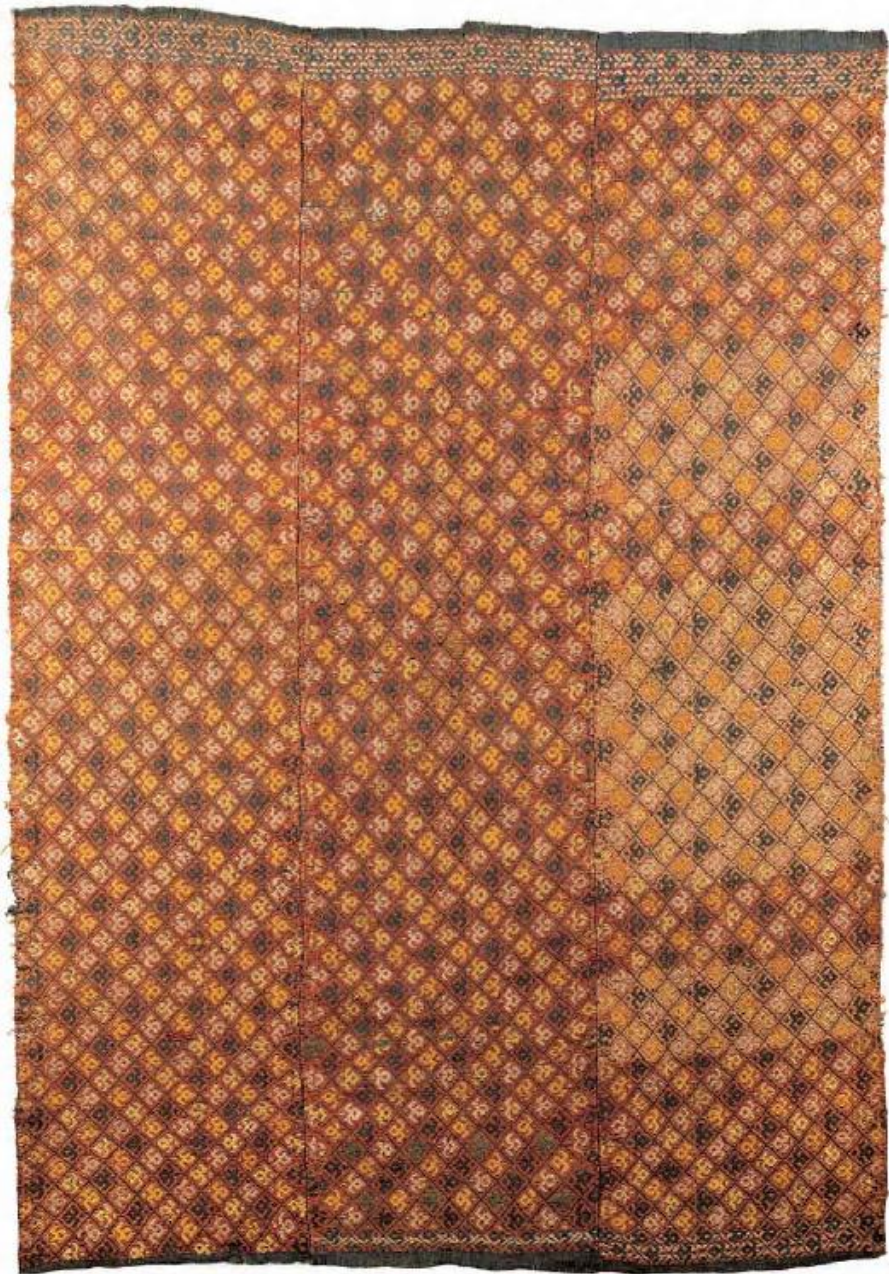


Fig. 15 Wedding bedcover, 120 cm × 85 cm, silk floss and cotton, natural dyes, nineteenth century. The pattern is a stylized 'bird in flight' and is characteristic of Buyi weaving from Libo. He Haiyan collection.

1 金银花.

2 铜钱花.



Fig. 1 Wedding bedcover, 119 cm × 64 cm, cotton, natural indigo dye, nineteenth century. Decorated with eight-pointed star in the central field, with stylised shou character (meaning 'longevity') on the vertical borders and a swastika-based leiwen 雷纹 or 'thunder pattern' on the horizontal borders. The motifs on this textile are unusual, since

Buyi weavers in Xingyi usually use a limited range of abstract geometric forms. Private collection, London.

5.10 Buyi weaving in Xingyi

Gaozhai village, Bajie township, Xingyi county, Guizhou province. 贵州省，兴义县，巴结镇，高寨村。

Survey conducted in November 2012.

Amongst the several weavers who we interviewed in this village, Cen Xiaolian, 19 years old, provided most of our information. She started learning to weave at the age of 14 and she says it took her ‘about six months’ to master the techniques and all the various designs. She is now working as an accountant in the city of Xingyi but she enjoys weaving brocade for her own pleasure. She is the youngest weaver that we met during our survey of more than twenty brocade-weaving areas, most of our other informants being a generation or two older.

The women of the village told us that they traditionally wove ‘when the weather is cold’, starting in October and ending in the spring. As a rule, no weaving is done during the first lunar month; a weaving that has been started has to be completed before the start of the New Year.

Weavers say that when commencing a new weaving a purification ritual, involving burning paper money and incense, has to be performed, though Cen, who has moved away to Xingyi city, no longer follows these traditions.

The material used for the yarn completely changed in the late 1980s. Weaving families formerly grew their own cotton and handspun it into yarn. Indigo dyed warps, ground wefts and supplementary wefts were mostly made of home produced cotton; some families also produced their own silk for supplementary wefts and embroidery. Home production of both cotton and silk have now been abandoned. Commercial cotton (or synthetic fibre) is now used for warps and ground wefts, while supplementary wefts are mainly made of ‘synthetic wool’. As a result of these changes, wedding bedcovers, which used to be mostly indigo blue in one or two shades on a white background, are now woven in vivid, contrasting colours.



Fig. 2 Bajie.

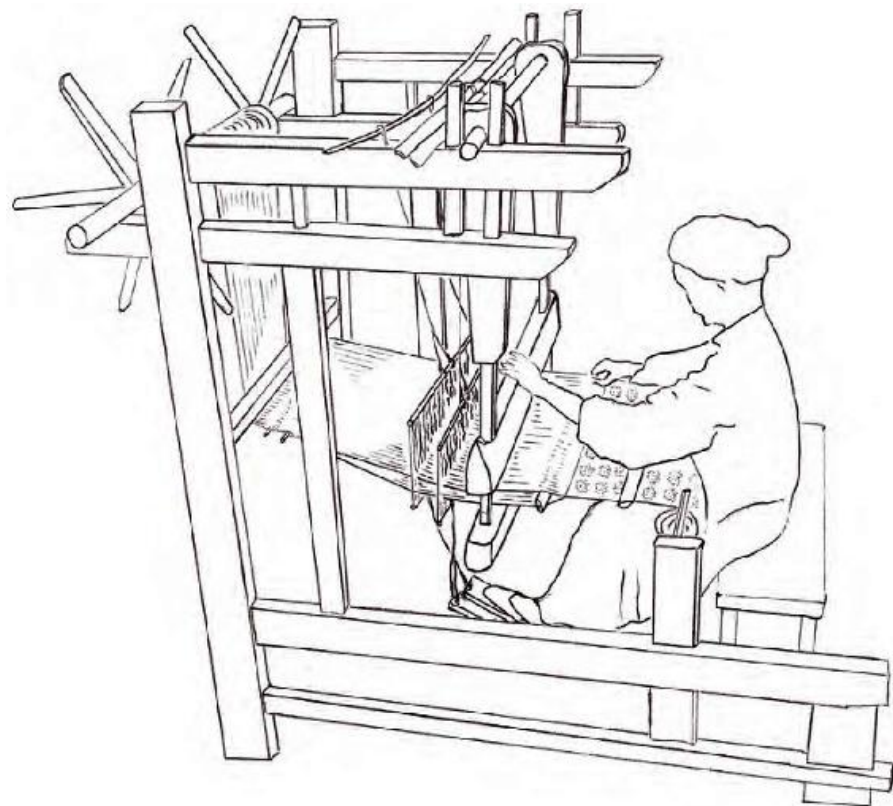


Fig. 3 An elderly weaver at work, in Bajie.

The wedding bedcovers are locally called *beiwo* and the bed sheet that goes with it is called a *badan*. The latter is a simple tabby weave

with check patterns using warps and wefts of various colours. Traditionally, a young woman was expected to weave at least eight sets of textiles for her wedding. Each set consisted of one brocaded bedcover and one tabby cotton bed sheet with a pattern of small squares. It was acceptable however for some of the work to be done by older female relatives. The sets were made in even number, and the richest families could present up to twenty sets at a wedding. Nowadays, very few young women master the brocade technique and most of the elderly women who we saw weaving were producing tabby or twill fabric only.

Gen Xiaolian wove bedcovers not only for her own future wedding but also produced bedcovers to order for Buyi and Zhuang brides living in the nearby area of Longlin in Guangxi, which is considered to be relatively wealthy. She also used to sell her bedcovers on the local weekly market. The prices she vary according to the cost of the material and the intricacy of the patterns: from a few hundred RMB to as much as 1800 RMB for her top quality work.

Loom features

Total number of warps: 518 (including 2 pairs on each side for selvedge).

Number of warps per reed space: 1

Brocade width: 45 to 55 cm.

Reed with a heavy frame, attached to a swinging bar, is used used to beat-in the weft.

Cloth beam is fixed to the loom frame.

The loom

One of the few groups not using a back-tension loom to weave brocades, the Buyi of Xingyi County use a loom with a cloth beam fixed to the loom frame, with a peg to maintain the warp tension. The peg goes through the cloth beam and fits in notches or slots on the right-hand side of the loom frame. The loom is equipped with two bidirectional heddles worked by treadles for ground-weave weft insertion. Twill fabric can also be woven on the loom, in which case two more heddles are added with their associated treadles.



Fig. 4 Cen Xiaolian at her home in Bajie with a bedcover panel that she wove for her own wedding.

The use of this type of loom with a fixed cloth beam and bidirectional heddles, a more sophisticated design than most looms used by Guizhou weavers, may be related to the demand for plainweave and twill fabrics in the area, as well as brocades.

Two different systems are used on looms in the village to support the groundweave heddles. One system is composed of two ‘crows’ (overhead rocker bars) linked to both sets of heddles: when one treadle is depressed it pulls one heddle down while pulling the other one up. In the other system, the heddles are activated separately; each heddle is suspended from a flexible transverse bamboo rod, which acts

as a spring; this means that when a heddle is not being pulled down by the treadle it automatically returns to its default (up) position. The bamboo spring is a similar, but simpler version of the system used for groundweave heddles on the Chinese Drawloom, and this may in fact represent a precursor of the Drawloom system.

The reed hangs from two wooden vertical arms and can be pulled forward, allowing it to be used as a beater. This is a characteristic feature of looms with a fixed cloth beam and two/four bidirectional heddles. In most back-tensioned frame looms in Southwest China the reed hangs freely in the warp and is not used as a beater, or only used for light/preliminary positioning of wefts prior to beating in with a heavy wooden beater.

Weaving technique

The reverse side of the brocade faces upwards when it is mounted on the loom.

Supplementary wefts are inserted by hand; warps are selected by counting from memory or by copying an old fragment. Two long, flat wooden blades are inserted between the weaver and the reed (Fig. 5), opening two opposite sheds which help the weaver during the weft insertion.

First step of weft insertion (Figs. 7, 11)

With the right treadle depressed to open the natural tabby weave shed, a flat bamboo blade B is temporarily inserted against the reed, in the tabby weave shed, allowing the weaver to see the warps more clearly. Another blade A is then inserted at the front, just against the leading edge of the already-woven brocade; this insertion is done by counting and picking the warps by memory or by using an old fragment as a guide. This separates the upper layer of warps (of the natural tabby weave shed) in two layers.

The discontinuous coloured supplementary wefts are then inserted under the warps raised by blade A (Fig. 6). Blade B is then taken out from the tabby shed it previously occupied and is reinserted to create a second patterning shed which is exactly the reverse of the one opened by blade A. A shuttle or a bobbin carrying the white continuous supplementary weft is inserted in the patterning shed created by blade B.

Second step of weft insertion (Figs. 8, 11)

The process is repeated with the tabby countershed open, by raising heddle 2.

A particular feature of this brocade technique is that in the sections of the weaving where there is colour patterning, no ground wefts are

present. The technique is very timeconsuming; an elderly weaver we observed took between ten and twenty minutes to insert the set of two warps (one coloured, one white). Cen Xiaolian accomplished this task in less than half the time, though with a simpler design. It takes a minimum of two weeks for an accomplished weaver to produce one wedding bedcover, the exact time depending on the complexity of the pattern. Bedcovers with Chinese characters along the borders are considered the most difficult to weave, so these pieces are sold at a correspondingly higher price.



Fig. 5 Bamboo blades A and B in reverse positions (see text) in the upper warp layer.



Fig. 6 Inserting discontinuous supplementary wefts by hand.

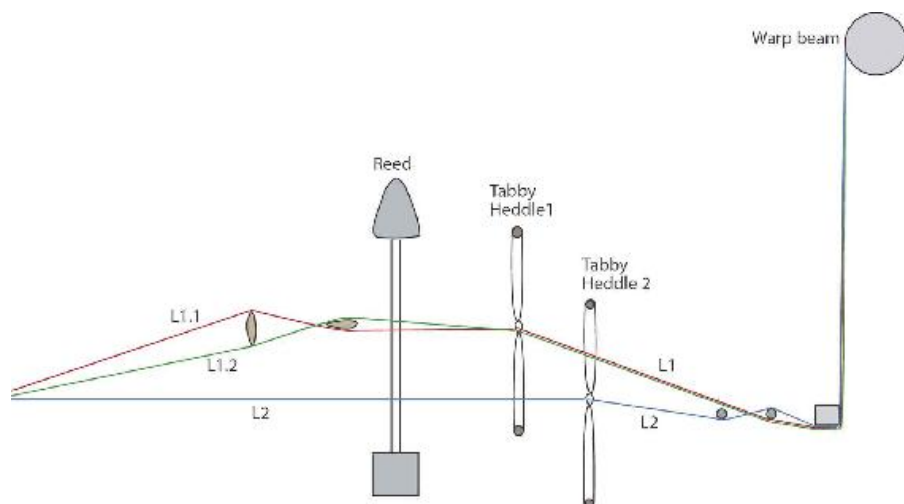


Fig. 7 Loom mechanism diagram1: separating the upper wefts layer of the natural tabby shed.

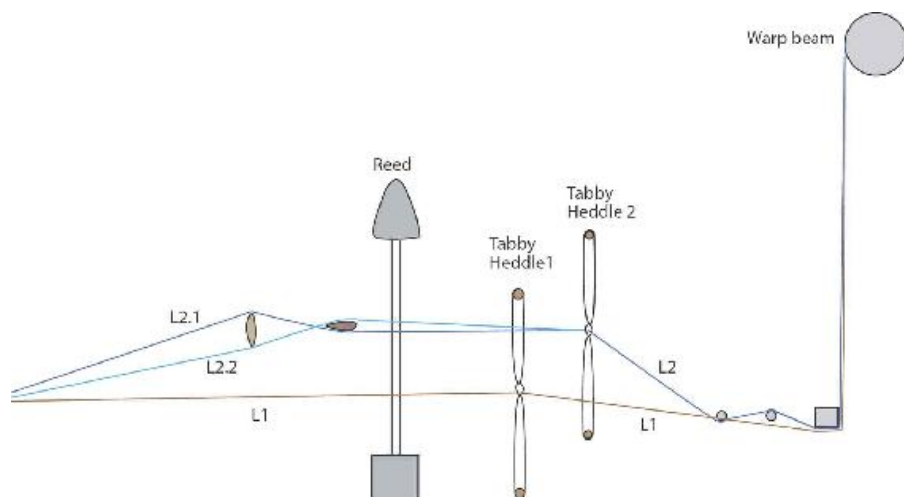


Fig. 8 Loom mechanism diagram2: separating the upper wefts layer of the tabby countershed.



Fig. 9 Reverse side of a wedding bedcover panel.

Structural analysis

Supplementary weft compound tabby used as a wedding bedcover panel, spring 2012. Panel is 47 cm wide (a cloth on another loom of similar type was found to be 57 cm wide). Pattern repeat: 7 cm. Thread count: 7 wefts (each composed of 1 set of three 2-ply white yarns and one set of two 2-ply coloured wefts), 9 warps per cm.

Warps: white cotton, 2-ply, S-spun.

Wefts (sets of 3 untwisted wefts if white; set of 2 untwisted wefts if coloured): wool in white, purple, red, pink, orange, green (dark and light), blue (dark and light), 2-ply, S-spun.



Fig. 10a Weave structure.



Fig. 10b Weave structure, reverse.

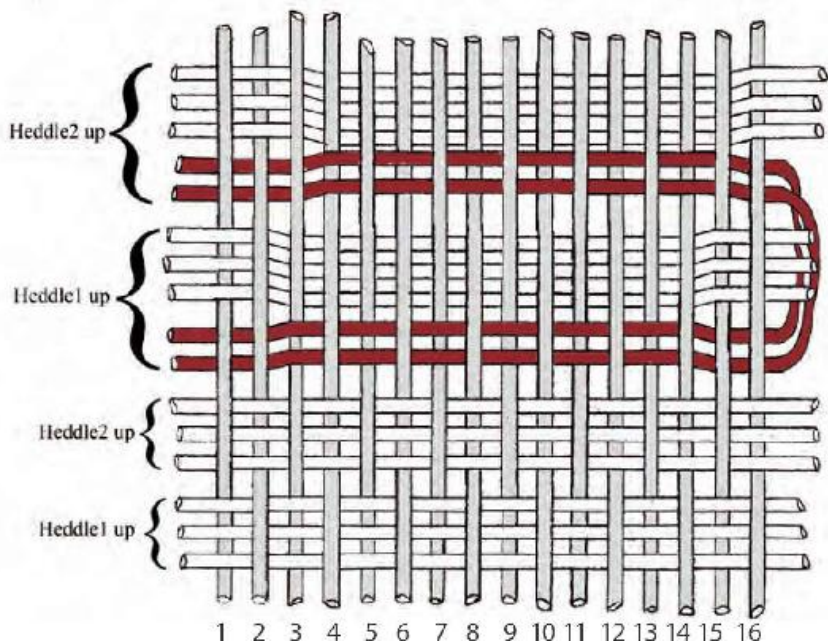


Fig. 11 Weave structure.

Glossary of Terms

Loom: *xiang ruo*

To weave: *dam*

Warp beam: *na*

Warp: *mai*

Weft: *dam ruo*

Reed: *fu'r*

Heddle: *gao*

Shuttle: *dao*

Shed stick: *rai*

Twill fabric: *bang a xiu*

Fabric (in general): *bang*



Fig. 12 Details of front (above) and reverse side (below) of Fig. 13.



Fig. 13 Brocade panel, 78 cm × 37 cm, cotton, natural dyes, circa 1900. In this panel both discontinuous (salmon and light blue) and continuous (dark blue) supplementary wefts form the pattern. He Haiyan collection.



Fig. 14 Details of the front (above) and reverse side (below) of the bedcover in Fig. 15.



Fig. 15 Wedding bedcover, 130 cm × 71 cm, cotton, natural indigo dyes, nineteenth century. He Haiyan collection.



Fig. 16 Wedding bedcover, 119 cm × 65 cm, silk and cotton, natural and synthetic dyes, early twentieth century. He Haiyan collection.

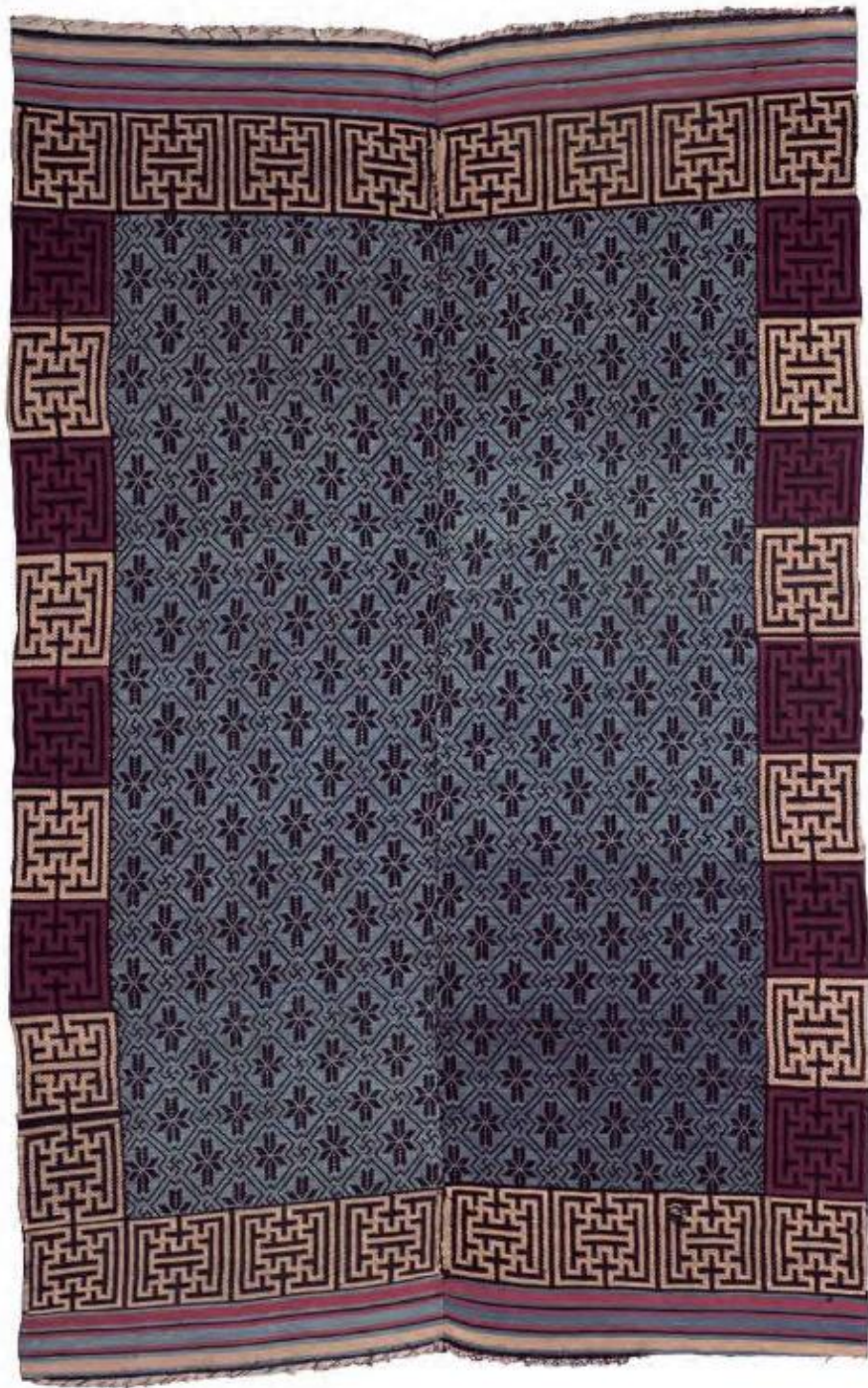


Fig. 17 Wedding bedcover, 120 cm × 66 cm, cotton, natural dyes, circa 1900. Private collection.



Fig. 1 Wedding bedcover, 130 cm × 72 cm, cotton, natural dyes, nineteenth century. A good example of the fine, dense weave produced by Buyi weavers in the Changshun area;

pattern of eight-pointed stars, 'well' motifs (four lines forming a lozenge) and stylised flowers. He Haiyan collection.

5.11 Buyi weaving in Changshun

Changshun 长顺 is located in South Central Guizhou, to the southwest of Huishui, where the Miao still weave brocade on traditional looms. We were not able to find any active Buyi loom weaving brocade in this area, however.

The fact that most textiles (wedding bedcovers and baby carriers) collected there are dyed with natural pigments suggest that this weaving technique had already disappeared by the early part of the twentieth century. Surviving bedcovers from this region have a distinctive, fine and dense weave composed mainly of cotton (with the occasional addition of silk), with long floats on the reverse of the weave.



Fig. 2 Details of the front (above) and reverse side (below) of the bedcover in Fig. 1.



Fig. 3 Baby carrier, the central panel in woven brocade, the upper part decorated with appliqué work. Brocade panel 41 cm × 32 cm. Silk and cotton, early twentieth century. The central panel, which is made with natural dyes, is probably older than the borders as local women often replace the more fragile parts of textiles. He Haiyan collection.



Fig. 4 Detail of the central, brocade part of the baby carrier in Fig. 3.



Fig. 5 Wedding bedcover, 95 cm × 66 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection.



Fig. 6 Detail of the front (above) and reverse side (below) of the bedcover in Fig. 5.



Fig. 7 Details of motifs on old Buyi bedcovers from the Changshun area.



Fig. 8 Detail of a wanzi (swastika) lattice motif on a Buyi bedcover from the Changshun area. The basic motif and weaving technique is the same throughout this bedcover: the variations in the design are the result of variations in the thickness of the wefts.



Fig. 1 Wedding bedcover, 127 cm × 89 cm, silk floss and cotton, natural dyes, nineteenth century. The eight-hook pattern is one of the most popular amongst Buyi weavers from the Qiannan area of South Guizhou. This bedcover is designed so that the indigo cotton outer border can be detached from the brocade and washed. He Haiyan collection.

5.12 Buyi weaving in Qiannan

Weavings collected in the Qiannan area of South Guizhou originate mostly from the counties of Sandu, Dushan and Luodian. We were not able to find any active weavers or looms in this area.

The fact that most wedding bedcovers that come from this region are dyed with natural pigments suggest that this weaving technique had disappeared by the early part of the twentieth century. The textile structures and motifs resemble Buyi weaving from the Libo area.



Fig. 2 Baby carrier, 422 cm × 63 cm (entire textile), silk floss and cotton, nineteenth century, and a detail of the brocade panel. He Haiyan collection.

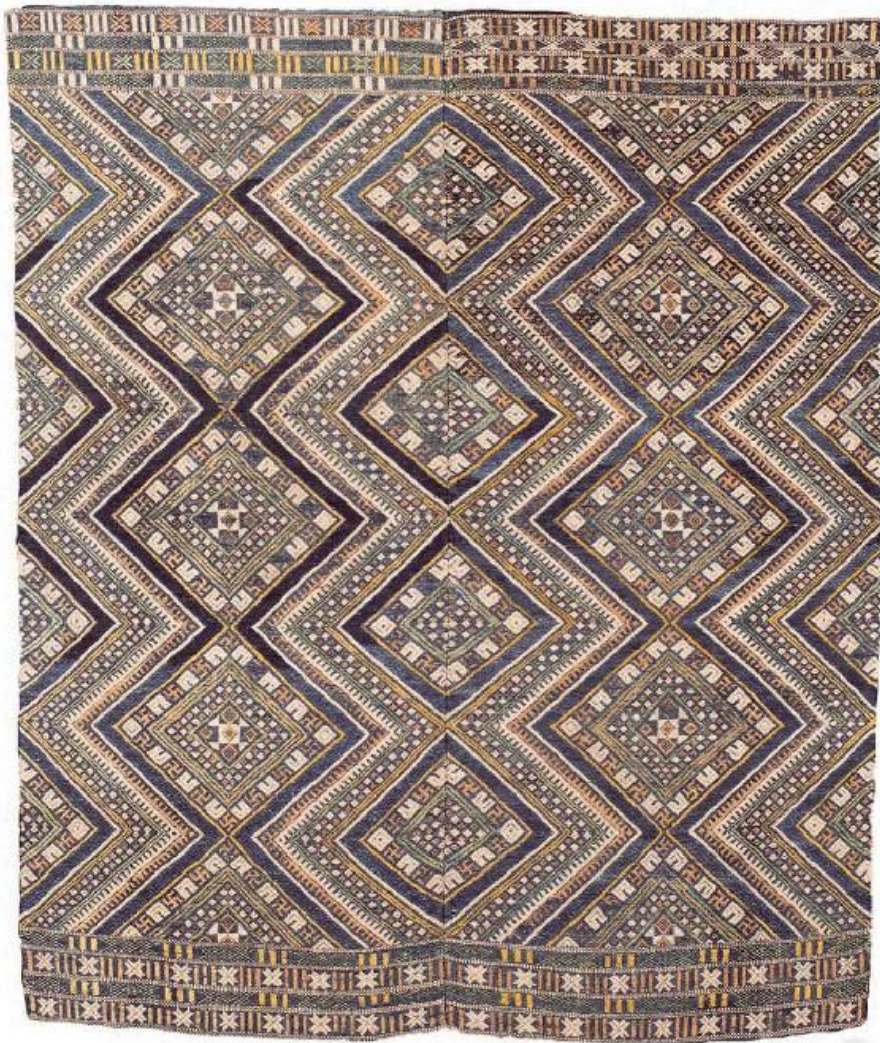


Fig. 3 Wedding bedcover, 104 cm × 87 cm, silk floss and cotton, natural dyes, nineteenth century. This pattern, composed of small lozenges, eight-pointed stars and swastikas is characteristic of Buyi bedcovers from the Qiannan area. Weavers in this region excelled in the art of combining yellow, green and blue pastel shades obtained from vegetable dyes. He Haiyan collection.



Fig. 4. Details of the front (above) and reverse side (below) of the bedcover in Fig. 3.

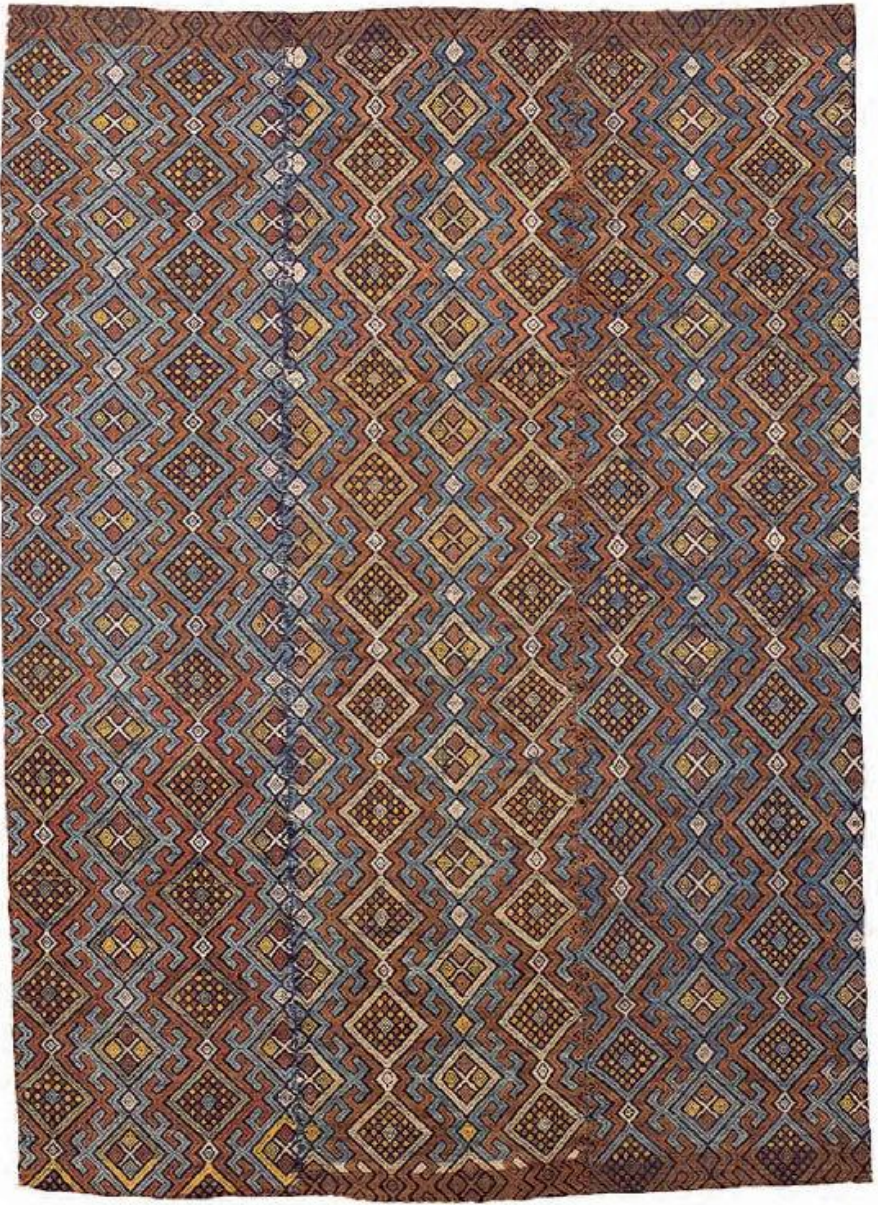


Fig. 5 Wedding bedcover made by Buyi people from the Qiannan area, 126 cm × 92 cm, silk floss and cotton, natural dyes. Nineteenth century. He Haiyan collection.



Fig. 6 Wedding bedcover made by Buyi people from the Qiannan area, 130 cm × 92 cm, silk floss and cotton, circa 1900. He Haiyan collection.

5.13 The Dong

The Dong (also known as Kam), with a population of approximately three million, live in a mountainous area located in Southeast Guizhou, South Hunan and Northwest Guangxi provinces. They are generally considered to be the descendants of a branch of the Bai Yue people, who lived in the southern part of pre-Imperial China. They call themselves 'Kam' in their own language; the term 'Dong' is a Han appellation that might originate in a Tai word meaning a cave or an area of flat land encircled by mountains and irrigated by a mountain stream. This type of flat area/plain was the smallest type of administrative 'barbarian' division under the imperial system. According to other sources, the Dong acquired their name from the region where they live, which was called Xidong in ancient China [Lemoine, 1976]. There are two linguistic sub-groups, one living in the south, the other in the north.

Dong carpenters are renowned for their talents in constructing intricate wooden architecture. Many villages are home to architectural masterpieces, including drum towers and 'wind-and-rain bridges'. Dong weavers are famous for indigo-dyed, calendered cotton fabrics with a glossy, coppery sheen, which were already known in ancient China for their solidity and brilliance.

The Dong venerate the sun, which they consider (contrarily to the Han) a feminine deity, as well as the goddess Satianba (or Sama, Sasui, Saxiang), who is also known as 'The Weaver' and 'The Ancestral Mother'. Santianba's cult is still very much alive today and most villages dedicate a small temple to her, in which she is represented by a pile of stones, where skeins of red and green silk yarns are placed (Figs. 1a, 1b).

Like most other Daic groups, the Dong use a Complex Pattern Heddle on their looms, which contains a permanent record of motifs.

Woven brocade was traditionally omnipresent as it was used for children's costumes and baby carriers, wedding bedcovers, women's costume decoration and wedding bags.



Detail of silk thread offering on the altar.

Dong brocades show a preponderance of dark indigo blue patterns on a white background, though several types of natural dyes were also used to colour supplementary wefts in the past. Dong women produced some of the most intricate woven structures amongst the ethnic groups of Southwest China, and they generally followed a conservative style, with little variety, in their patterning. Some patterns, in Bazhai county for example, are strongly reminiscent of archaeological fragments dating from the Chu kingdom. Dong brocades were also renowned as tribute textiles at the Chinese court.¹



Fig. 1 An altar dedicated to the Dong goddess Sama (Satianba) in Liping county. Silk thread offerings to the 'Ancestral Mother' bear witness to the gratitude of local Dong weavers for her inventions of spinning and weaving, and for bringing the weavers good fortune in their endeavours.

¹ Geary et al [2003, 132] quoting Hu Fengheng 胡奉衡 黎平竹枝 词 (1662–1722): 'Kam brocades.. are manufactured in Rongjiang' and '...the women make cloth to give tribute.'; quoting Li Zhongfang 李宗昉, 黔记 (1796–1820): 'The Kam brocade of Caodidong village 曹滴洞 [present-day Wangdong in Congjiang county, about 50 km southwest of Bazhai] in Liping county is the best quality brocade in any of the provinces.'



Fig. 1 Baby-carrier, upper panel 44 cm × 43 cm, lower panel 39 cm × 13 cm, silk and cotton, first half of the twentieth century. Woven motifs on baby carriers are for the protection of the child; in this case, auspicious symbols that are characteristic of the Southwest generally, such as eight-pointed stars (interpreted as ‘good things coming from the eight cardinal directions’) and wanzi coexist with motifs that are more particularly Dong, such as the two rows of women holding hands, said to express the solidarity of the women from the village and their protective role towards children. He Haiyan collection.

5.14 Dong weaving in Tongdao



Fig. 2 Ouyang with a baby-carrier that she wove for her grandchild.

Zhuanshui village, Tongdao County, west Hunan province. 湖南省，通道县，转水村. Surveyed March 2012.

Tongdao (which literally means ‘passageway’) is an important and ancient point of access to the Southwest of the Xiangxi area (West Hunan). As the local tourist agency likes to point out rather picturesquely, ‘it was the crossing point between two worlds: the Chu kingdom (南楚极地 ‘the furthest point of southern Chu’) in the North and the Bai Yue (百越襟喉 ‘strategic point of the Hundred Yue’) to the south. Zhuanshui is located on the side of a major road that connects Liping, Hongzhou and Tongdao, and forestry and agriculture are the main occupations in the area. Today, young people working in coastal industrial cities send money back to the village, enabling villagers to live in modern dwellings.

Two weavers were interviewed for this survey: Ouyang Wenchang, 48

and Huang Juxia, who is 'in her forties'. Ouyang started to learn brocade weaving at the age of 13. In the past most brides were expected to weave their trousseau themselves. Nowadays most young women leave the village to work in urban areas and have no interest in learning to weave: this is why Ouyang is weaving a wedding bedcover for her daughter's wedding. It is still important for the brides to possess these items for their weddings, so either their mother weaves them or bedcovers are purchased 'ready woven' on the local markets, where a bedcover sells for 1500 to 2000 RMB. Bedcovers can also be commissioned from local weavers from other families.

Brocade was used in this area for children's costumes, baby carrier panels and wedding bedcovers. In former times, a young woman started to learn this type of weaving from her mother around the age of 14. She was expected to weave a minimum of two wedding bedcovers, and as many as three or four, plus two or three baby carriers, before she married.

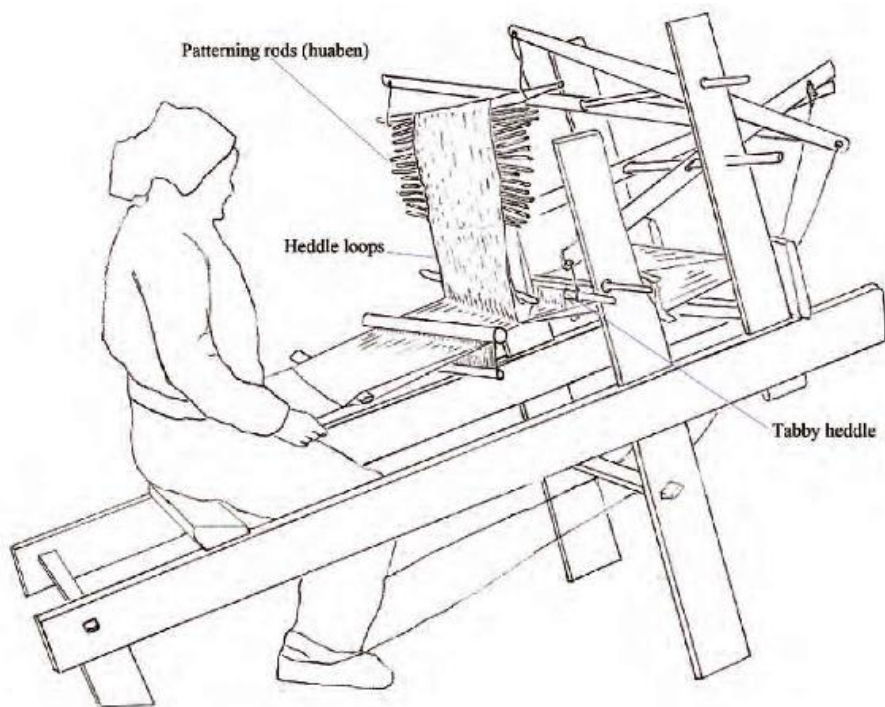


Fig. 3 Ouyang's loom.

Most old brocaded wedding bedcovers are decorated with an indigo pattern on a white ground. Traditionally, the yarn used to be made of locally grown and hand-spun cotton, dyed with indigo in the village. It is likely that multicoloured wedding bedcovers only began to be woven once synthetic dyes became available. Baby carriers, which

were traditionally decorated with more intricate motifs were often woven with some coloured silk supplementary wefts (Fig. 1). All the yarns used for weaving brocade are now purchased on the market or in shops; white commercial cotton thread is used for warps and tabby ground wefts, colourful ‘synthetic wool’ yarn is used for supplementary wefts. Heddles are now made from nylon thread: Ouyang sings the praises of nylon, which she says ‘is strong and slides easily’, making the heddle easy to use.

A similar repertoire of motifs is used by all the weavers in the area. The motifs are intricate, geometric forms including stylized animals (birds, butterflies, horses) and human figures (women holding hands). They are mostly shapes with reflection symmetry, with the axis of symmetry along the weft direction, woven as two symmetric halves. The full motif is repeated along the warp direction (see Section 5.2 ‘Note on Daic Complex Pattern Heddles’). In one example that we saw on the loom the complete symmetric pattern was composed of 218 supplementary wefts, requiring the use of 109 pattern rods.

The loom

Dong weavers in the Tongdao area use a back-tension frame loom with one heddle for tabby weave. The heddle is attached via cords to a pair of levers, which are raised by a cord attached to the right foot. The pattern system that we examined was made of 109 bamboo rods, as mentioned (this number varies with the pattern), used once in sequence and then again in reverse to make one design repeat. The patterning system is suspended by cords (Figs. 3, 4, 5) from a second pair of levers, which are lifted by a cord attached to the left foot. Huang Juxia made the set of pattern rods herself by following an old textile fragment. She told us that this work took her two days.

Two wooden beater-shuttles are used, one for the insertion of tabby ground weft and one for the continuous supplementary weft. A metal hook is used to insert discontinuous supplementary wefts.



Fig. 4 Wedding bedcover panel on the loom.



Fig. 5 The tabby heddle is located at the back of the patterning system.

Weaving technique

The reverse side of the brocade faces up while on the loom.

The bamboo rod pattern system is only used for the insertion of the continuous (in this case purple) supplementary wefts. Discontinuous supplementary wefts are inserted with a hook after counting the warps by hand (Fig. 6). These two techniques correspond to two types of

patterns; patterns with reflection symmetry can be woven using the pattern system, other patterns with asymmetrical motifs (for instance the row of women holding hands at the extremities of the small panels) are woven by selecting the warps by hand. Wedding bedcovers require both techniques (i.e. the pattern rods system and hand-picking); baby carriers are usually woven using hand-picking only, which is more time-consuming. As a consequence baby carriers are usually considered more valuable than bedcovers.

There are two rows of tabby ground wefts between each set of coloured supplementary wefts. On older fragments, such as the one we analysed (Fig. 15), there is sometimes only one row of tabby ground weft between each set of coloured supplementary wefts.



Fig. 6 Inserting the discontinuous supplementary wefts.



Fig. 7 Opening the front patterning shed.

1. Insertion of discontinuous supplementary wefts (Fig. 6)

This is done by counting the warps (usually three or five pairs, less frequently seven pairs), separating them and inserting the wefts with the hook. When the weaver counts 'one warp' it is in fact a pair of warps (two warps per reed dent) that she picks up. For the insertion of discontinuous supplementary weft the pattern system is of no help; the weaver has to know the pattern from memory or refer to an old textile fragment.

2. Insertion of continuous supplementary weft

The weaver employs the patterning system, beginning by pulling down a patterning rod from the back of the patterning system, while bending forward to reduce warp tension. Holding and pulling down the rod with both hands, she moves the rod back and forth in order to separate the heddle leashes into two groups, one at the back and one at the front (Fig. 7).

While continuing to lean forward to lessen warp tension and enlarge the shed opening, she introduces a flat bamboo stick to separate the two (back and front) groups of pattern heddle leashes; the flat bamboo stick is then pushed down in order to widen the back and front patterning sheds. A beater-shuttle holding the continuous supplementary weft is introduced in the pattern shed created at the front. At this point the pattern rod, which was located at the back of the patterning system, is removed and replaced at the front, preserving the pattern order. The beater-shuttle is then pulled all the

way though the shed, inserting the continuous supplementary weft. The weft has to stay quite loose (in an arc, not pushed up against the previous weft) since it would create problems with beating-in the wefts if it were too tight at this stage. The continuous supplementary weft is then beaten-in lightly with the reed.

The two rows of ground wefts are then inserted; the first row from left to right in the natural shed, then a second row from right to left in the counter shed. At each passage the beater-shuttle is used to beat in the previously inserted wefts more firmly.

As noted, the set of pattern rods is used in sequence and then the direction is changed and they are used once again in reverse order. The centre point is not marked on the pattern system: the only way the weaver knows when to change direction is by looking at the pattern that she is weaving.

It takes Ouyang about approximately 15 days to finish a bedcover with four panels. Traditionally bedcovers had three panels, but now the fashion is to make them from four panels (one panel is usually about 150 cm long and 30 to 35 cm wide).

Loom characteristics

Total number of warps: 960, white commercial cotton (especially made for warps).

Reed spacing: 11 to 12 dents per centimeter.

Width of reed used for warps: 46 cm.

Number of warps per reed spacing: 2

Wefts are beaten-in with beater-shuttles

Glossary of Terms

Loom: *song³*

Warp: *san su yi*

Weft: *san dam*

Warp beam: *gao da*

Cloth beam: *gok ya*

Reed/comb: *ngo*

Heddle: *gao*

Beater shuttle: *mei da*

Back strap: *ban you*

Bamboo rods patterning system: *mei ling*

Brocade: *hua1*

Tabby cloth: *ya* (used by southern Dong people; Bazhai, Jiuchao, Hongzhou); *min* (also means cotton; used in Zhaoxing, Shuikou)

Tool separating the warps at the back of the loom: *mei kong*

V-shaped heddle supports: *ga meou* ('scissor-like')

Bedcover: *mian hang*

Baby carrier: *shei da*





Fig. 8 (Above) woman's headscarf (toupa), 72.5 cm × 31.5 cm, silk and cotton, circa 1900. (top) detail showing stylized butterflies, men riding horses and pairs of confronting birds (said to represent marital fidelity), all of which are characteristic of Dong brocade patterns.



Fig. 9 Child's jacket, composed of brocade panels, 63 cm × 35 cm, cotton, indigo, early twentieth century. Motifs of stylised birds in flight. He Haiyan collection.



Fig. 10 Child's jacket, composed of brocade panels, 67 cm × 37 cm, cotton, indigo, early twentieth century. Geometric floral motifs. He Haiyan collection.



Fig. 11 Apron, height 57 cm, width 65 cm, cotton, natural indigo dye, nineteenth century. Motifs: wanzi and eight-pointed stars. He Haiyan collection.



Fig. 12 Woman's jacket, composed of brocade panels, 111 cm × 70 cm, cotton. He Haiyan collection.



Fig. 13 Reverse side detail of a wedding bedcover panel.

Structural analysis

Supplementary weft compound tabby for a young child's jacket, mid twentieth century. Panel is 38 cm wide. Thread count: 20 warps, 26–28 wefts (13 ground wefts, 13 supplementary wefts) per cm.

Warps: off-white cotton, 2-ply, S-spun.

Ground wefts: off-white cotton, single-ply, Z-spun.

Supplementary weft: dark indigo blue cotton, two parallel threads; one thick thread with S torsion, one thin thread with no apparent torsion.



Fig. 14a Weave structure.



Fig. 14b Weave structure, reverse side.

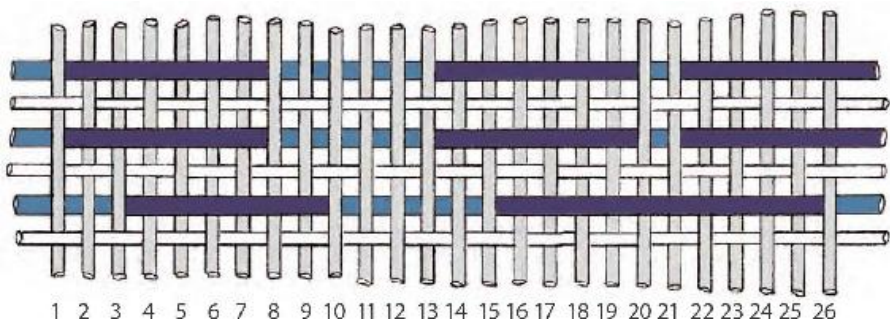


Fig. 15 Weave structure.



Fig. 16 Details of three wedding bedcovers. The two covers on the left-hand side have variations on the eight-pointed star motif (He Haiyan collection). The one on the right has motifs of birds in flight (a group of four in a diamond in the centre), surrounded by animals, abstract hooks and eight-pointed stars (Private collection).



Fig. 17 Wedding bedcover, 141 cm × 112 cm, cotton, indigo, around 1900. This exceptional textile has an unusual central motif, perhaps intended as a stylised butterfly, surrounded by eight-pointed stars, wanzi (swastikas) and stylised flowers. He Haiyan collection.



Fig. 18 (Right) detail of 'butterfly' design in the centre of Fig. 17, (left) reverse side.

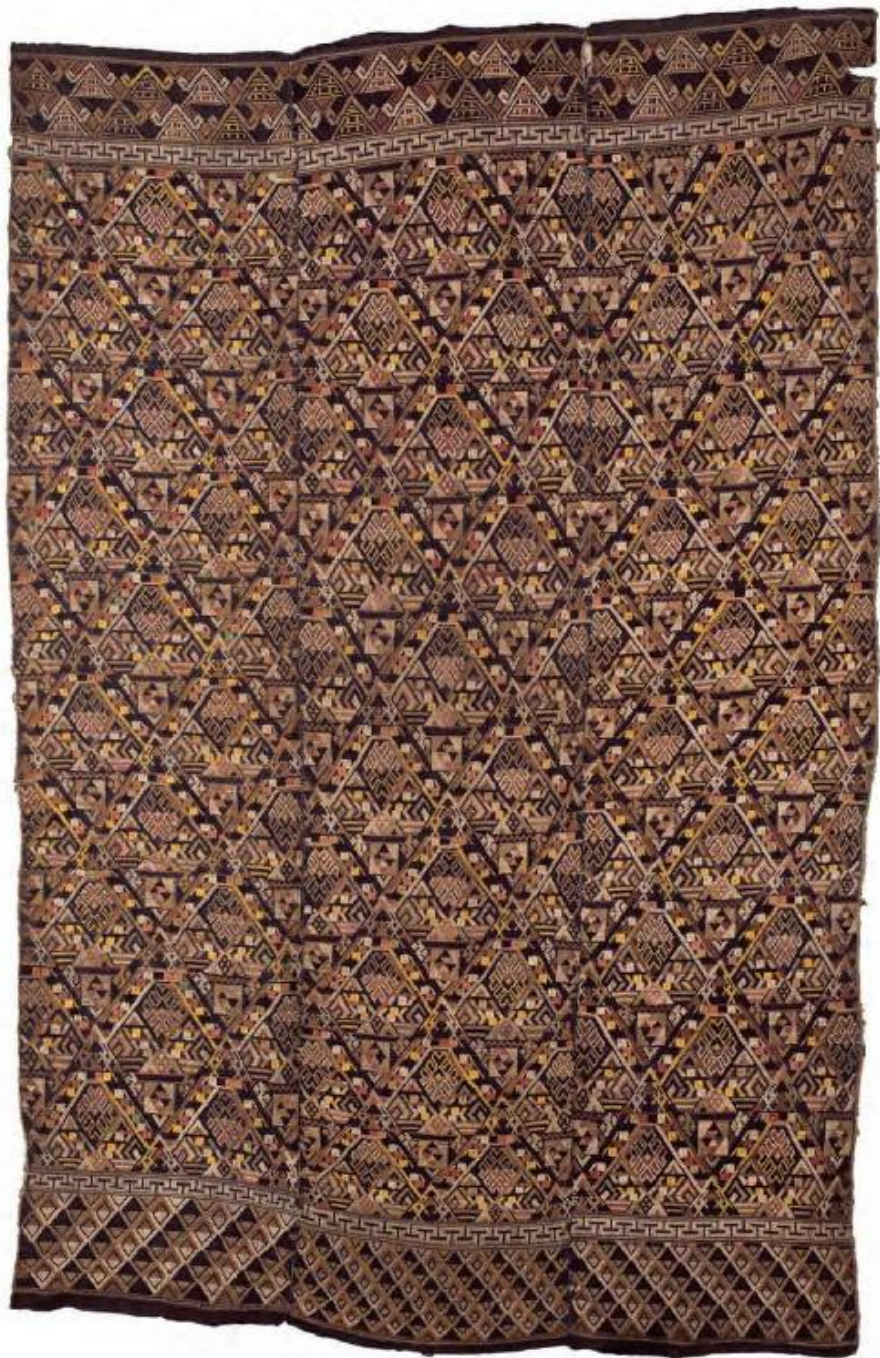


Fig. 1 Dong wedding bedcover, Bazhai area, 135 cm × 88 cm, silk and cotton, natural dyes, nineteenth century or earlier. Complex, abstract and geometric patterns, characteristic of old Dong weavings from Liping county, suggest a link to archaic designs on Warring States textiles. Private collection.

5.15 Dong weaving in Bazhai

Bazhai village, Liping county, Southeast Guizhou. 贵州省，黎平县，坝寨. Survey conducted in March 2012.

We visited several villages (Bazhai, Yangzhai, upper and lower Gaochang) where some people said traditional brocade weaving was still present, but after carefully checking, this information proved unfounded. Women in their seventies said that they themselves had never learned how to weave weft patterned brocades. This means that this technique was abandoned as early as the 1940s or earlier, a disappearance that is corroborated by the fact that no recently woven wedding bedcovers (using synthetic dyes) have been found, to our knowledge.

Brocade weaving in this area was mostly used to produce wedding bedcovers, very few of which have survived, the ‘tails’ of young women’s courtship jackets (see below) and the front panels of wedding bags, also used in courtship rituals.

Structural analysis confirms that these three types of items could have been woven on the same loom using the same technique.

The weaving technique apparently disappeared even earlier than the customs relating to the jackets and bags, as even the oldest women never witnessed them being made; they even argued among themselves whether they were woven or embroidered. Technical analysis shows that the weave structure of these ‘tails’ is very similar to that of baby carrier panels woven by the Cao ‘Miao’ people of Pingshan village in Zhaoxing district, which is about 50 kilometres away (Chapter 4, Section 4.4). The Cao Miao people do not speak the Miao language but the same Dong dialect as the Dong people living in Bazhai area. It seems very likely, therefore, that a loom similar to the Cao Miao loom was used here at one time.



Fig. 2 Details of the front and reverse sides of Fig. 1.

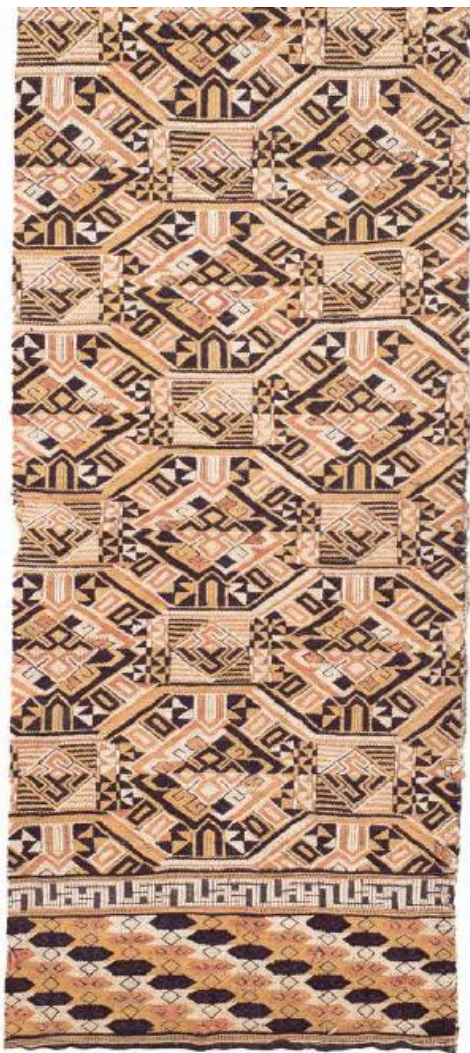


Fig. 3 Fragment of a Dong wedding bedcover panel, Bazhai area with details of the front and reverse sides (at right). Dimensions 61 cm × 25 cm. Woven using silk and cotton, coloured with natural dyes. Nineteenth century or earlier. Private collection.

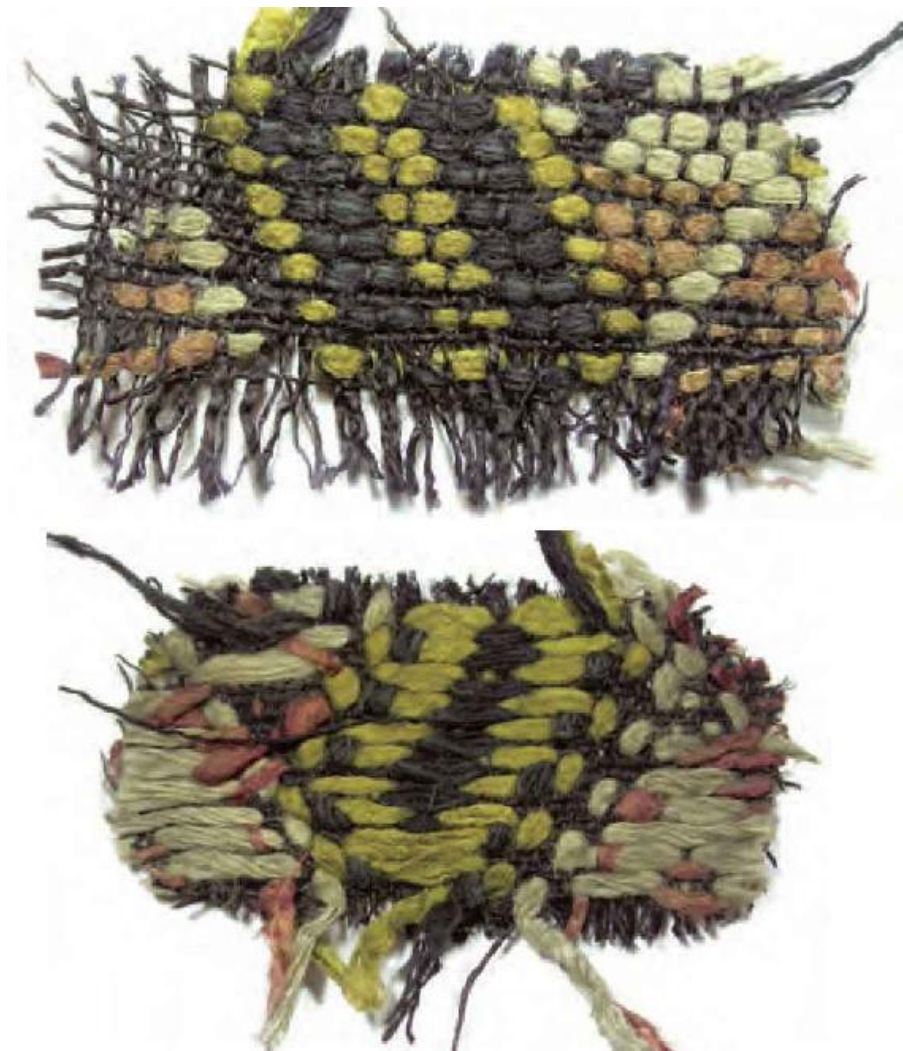


Fig. 4 Front (top) and reverse sides of fragment analysed in Fig. 5.

Structural analysis

Supplementary weft compound tabby used for a wedding bedcover panel, Nineteenth century. Panel is 29 cm wide; pattern repeat: 133 wefts. Thread count: 24 warps, 17 wefts per centimeter.

Warps: dark indigo cotton, single-ply, Z-spun.

Ground wefts: dark indigo cotton, single-ply, Z-spun.

Supplementary weft 1: dark indigo cotton, 5-ply, Z-spun.

Supplementary weft 2: yellow cotton, 3 to 5-ply, Z-spun.

Supplementary weft 3: off-white cotton, 6-ply, Z-spun.

Supplementary weft 4: salmon coloured silk floss, single-ply, no apparent torsion.

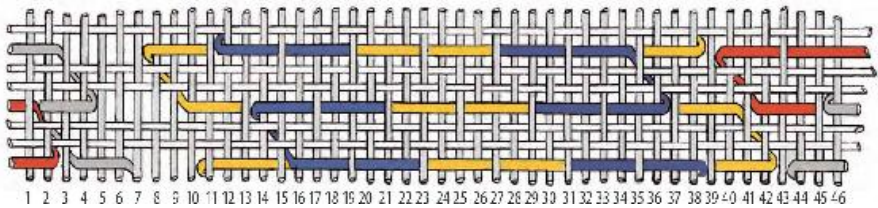


Fig. 5 Weave structure of a Dong wedding bedcover fragment from the Bazhai area.



Fig. 6 Detail of a Dong wedding bag panel, Bazhai area, 28 cm × 27 cm, silk and cotton, natural dyes, nineteenth century or earlier. Private collection.



Fig. 7 Dong wedding bag, Bazhai area, 26 cm × 20 cm, silk and cotton, natural dyes, nineteenth century or earlier. Private collection.



Fig. 8 Front panel of a Dong wedding bag, Bazhai area, 34 cm × 25 cm, silk and cotton, natural dyes, nineteenth century or earlier. The freshness and brilliance of the natural vegetable dyes suggest that this panel was never used. At the top, a row of women holding hands can be seen. The rhomboid pattern is said by villagers to be a representation of the



Fig. 9 Dong wedding bag, Bazhai area, 52 cm × 37 cm (full textile), silk and cotton, natural dyes, nineteenth century or earlier. This textile offers a fascinating example of two neighbouring cultures' iconographies side by side on the same object. The main (lower) panel is made of woven brocade, with archaic Dong motifs similar to Fig. 8, while the upper panel is decorated with hand stitched silk embroidery and couched gold thread, depicting a classic Han Chinese scene of two dragons playing with a pearl, surrounded by auspicious symbols including bats, coins, gourds and clouds. He Haiyan collection.

Bazhai courtship jackets' 'tails'



Fig. 10 A young woman's courtship jacket with 'tail' in place, 147 cm × 58 cm, silk and cotton, mostly natural dyes, circa 1900. He Haiyan collection.

These 'tails', which show some of the most intricate brocade weaving in Southwest China, combined with the appliquéd work of equal delicacy, were used as a token of love until the early part of the twentieth century. They were called *dingqing* 定情 ('confirmations of love') and attached at the back of jackets worn by young women during courtship events involving chanting and dancing. When a girl took a fancy to one of the boys, she removed her 'tail' and offered it to him; if the boy accepted it this meant that a serious relationship existed between them, which might lead to marriage.

Structural analysis

Thread count: 30 warps, 48 wefts per cm

Warps: cotton, indigo blue, 2-ply, S-spun

Ground weft: cotton, indigo blue, 2-ply, S-spun

Supplementary wefts: silk floss, natural dyes (white, yellow, green, salmon red).



Fig. 11 Dong courtship jacket's tail, Bazhai area, 49 cm × 7 cm, silk and cotton, natural dyes. Nineteenth century. (Facing page, left side) detail of the brocaded section. Private collection.



Fig. 12 Dong courtship jacket's tail, Bazhai area, 48 cm × 5.8 cm (full textile), silk and cotton, natural dyes, nineteenth century. Private collection.

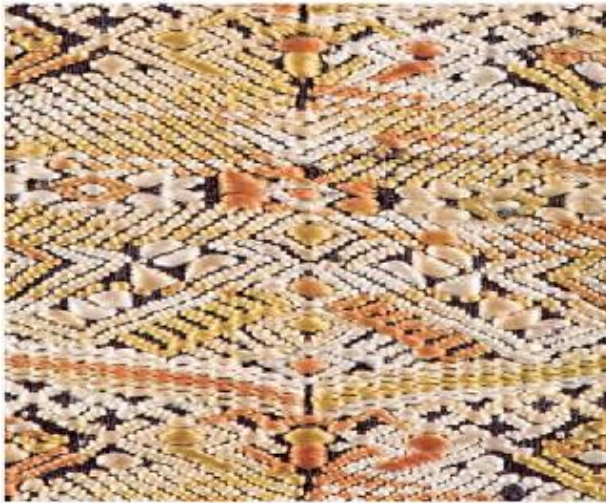


Fig. 14 (Top) detail of Fig. 12, (Middle) detail of Fig. 13, (Below) detail of the reverse side of Fig. 13.



Fig. 13 Detail of courtship jacket 'tail', 55 cm × 26 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection.



Fig. 1 Dong brocade fragment, Liping county, 36 cm × 34 cm, silk and cotton, natural dyes, nineteenth century or earlier. The extraordinary vivid colours of the vegetable dyes suggest that this panel (which was probably destined to decorate a wedding bag) was never used. The 'confronting birds' motif is extremely rare. He Haiyan collection.

5.16 Dong weaving in Liping

Liping county, Qiandongnan, Southeast Guizhou province. 贵州省，黔东南，黎平县.

We were not able to find any surviving brocade looms in this area during our research. Interviews with local people and fragments of old textiles from this area tend to suggest that the technique had already been abandoned by the beginning of the twentieth century, and may have ceased even earlier. A small number of fragments of brocaded bedcovers, and some brocaded and embroidered wedding bags survive from the weaving traditions of this area. These include some spectacular examples of supplementary weft weaving with unique designs and motifs.



Fig. 2 Details of the front and reverse of Fig. 1.



Fig. 3 Detail of a brocade panel from the Liping area. He Haiyan collection.



Fig. 4 Dong wedding bag, Liping county, 40 cm × 35 cm (full textile), silk and cotton, natural dyes, nineteenth century. Lower panel made of woven silk and cotton brocade, upper panel decorated with hand stitched silk embroidery. He Haiyan collection.

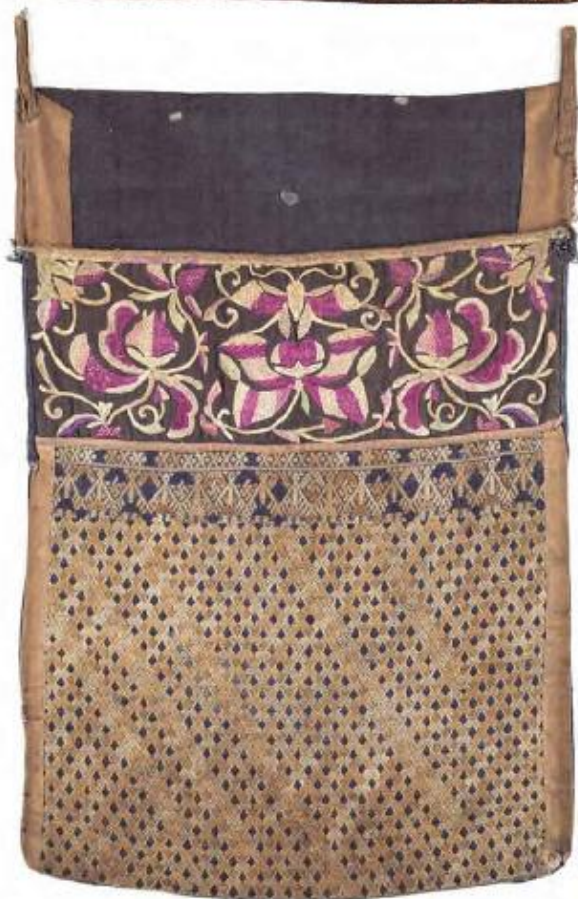


Fig. 5 Dong wedding bags from Liping county.

Above: brocaded bag, 30 cm × 18 cm, silk and cotton, natural dyes, nineteenth century. Private collection.

Below: embroidered and brocaded bag, 46.5 cm × 32 cm, silk and cotton, nineteenth

century or earlier. Lower panel made of woven cotton brocade, with a typical Dong motif of a row of women holding hands. Upper panel decorated with hand stitched silk embroidery representing butterflies, flowers and pomegranates, which are Han Chinese symbols of fertility. He Haiyan collection.



Fig. 6 Details (left) and reverse sides (right) of three Dong wedding bedcovers from Liping county. Silk floss and cotton, natural dyes, nineteenth century. Private collection.



Fig. 7 Details (left) and reverse sides (right) of a Dong coffin cover (above) and two wedding bedcovers (middle, below), from Liping county. Silk floss and cotton, natural dyes, nineteenth century. Private collection.



Fig. 8 Child's coat, 76 cm × 48 cm, silk and cotton, first half twentieth century. Children garments entirely made of multi-coloured brocade, especially woven for that purpose, are rare amongst the peoples of Southwest China. Private collection.

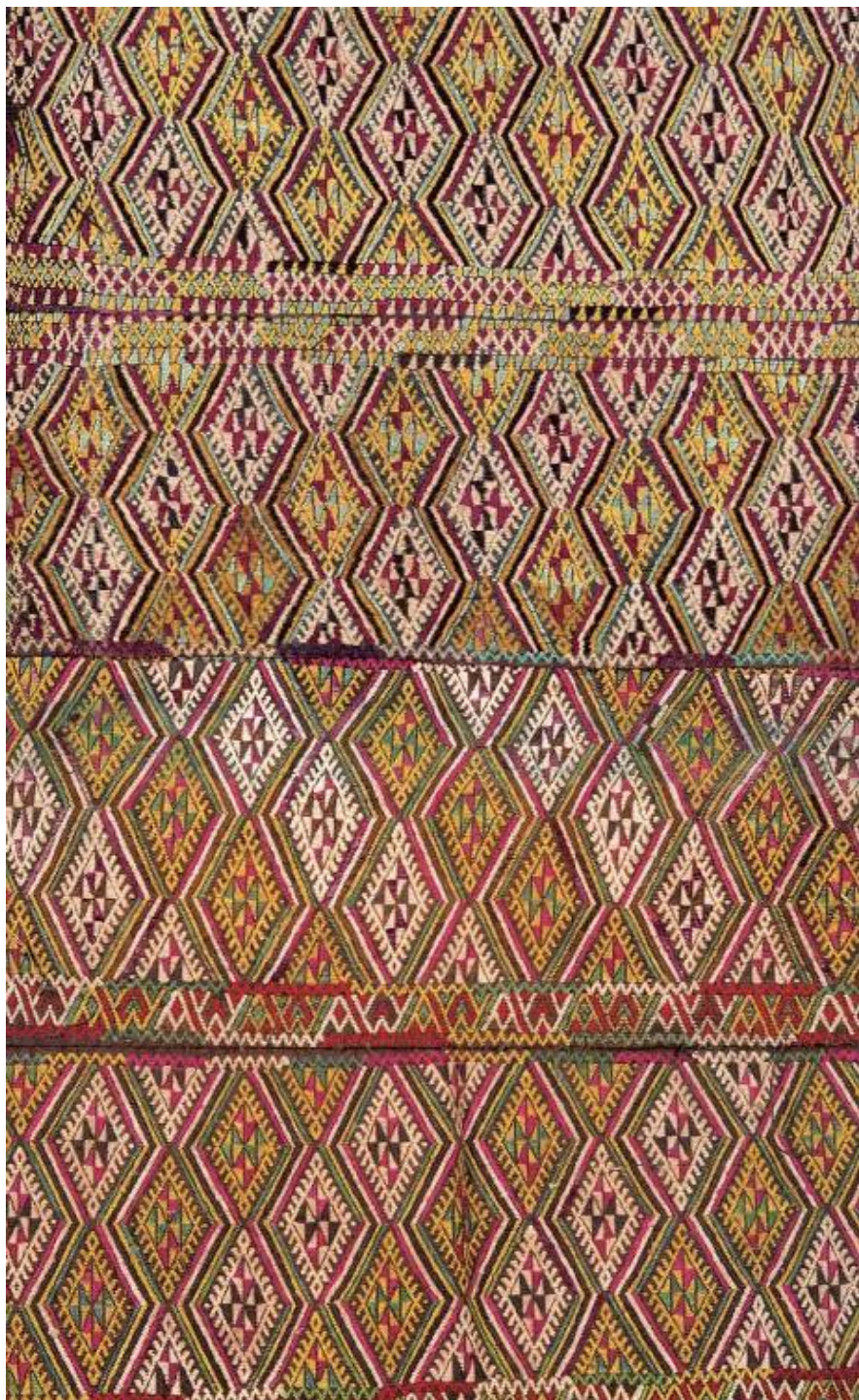


Fig. 9 Detail of the brocade on the back of the coat in Fig. 8, constructed from four brocade panels sewn together.



Fig. 10 Sleeveless jacket, 55 cm × 51 cm, silk and cotton, natural dyes, nineteenth century or earlier. This garment was probably made from panels that were previously part of a wedding bedcover. No complete bedcovers with this design have survived, as far as we know. He Haiyan collection.

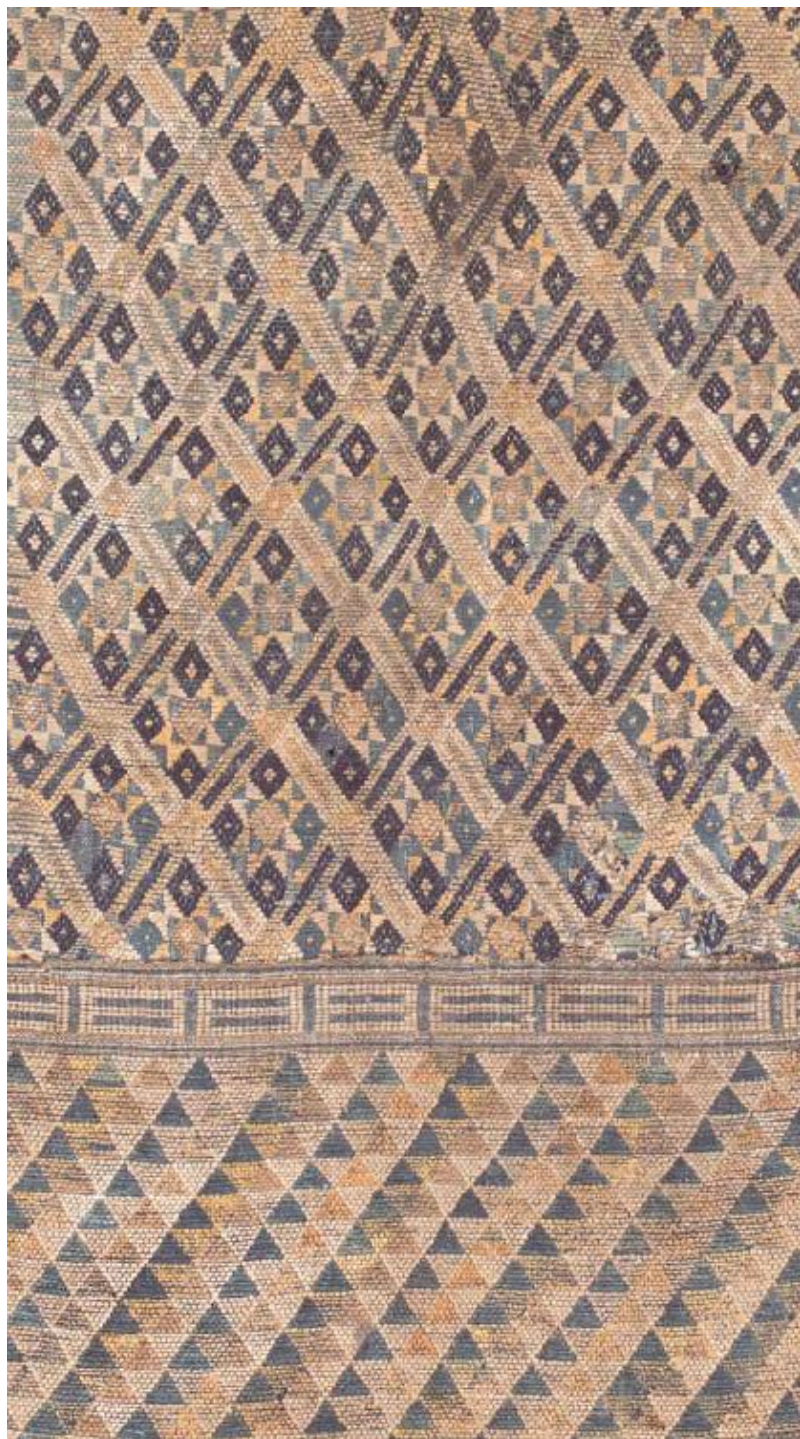


Fig. 11 Detail of the back of the jacket in Fig. 10.

5.17 The Maonan

The Maonan population is estimated at around 120,000, of whom around two thirds live in the mountainous areas of northern Guangxi province, mainly in Huanjiang county, a region known as *si en* in ancient Chinese texts (Xianan, Zhongnan and Shangnan districts). The remainder live in southern Guizhou province, mainly in Pingtang, Libo and Dushan.

According to official Chinese classification, the Maonan, who call themselves *anan*, which means ‘aboriginal’ in their own language, belong to Zhuang-Dong-Shui subgroup of the Daic linguistic group. Some western linguists differ on that point: Lemoine places the Maonan language in the Kadai branch of the Tai-Kadai (Daic) group.¹ More recently, Lu Tianqiao assigned them to the Kam-Sui subgroup (to which the Dong also belong).

The term Maonan appears for the first time in Chinese records from the Song dynasty, written during the reign emperor Xiaozong (1174–1189). In this context the term was used to designate a distinct ‘barbarian tribe’. The Maonan seem to have been some of the first peoples to be assimilated by expanding Han populations in Southwest China. They abandoned their traditional costume a long time ago and adopted Han Chinese dress codes as well as religion and customs.² They do not have a writing system of their own: Chinese characters (or a local version of them called *tusuzi*)³ are used exclusively for genealogies and religious texts which are not intelligible to the majority of the population. Nevertheless, many Maonan have retained their own weaving traditions that are related to Han Chinese styles but at the same time have a number of distinct features.

The connections with Han decorative styles can be clearly seen in the style of their wedding bedcovers, which seem to be the last surviving remnant of their textile culture. These wedding bedcovers are quite unique amongst the weaving groups of Southwest China; they differ significantly from the wedding bedcovers of other ethnic groups, both in terms of their texture, which is thick and smooth and uses a great deal of shiny silk floss, and in their designs and motifs, which share many features with Han brocades. The general composition, consisting of figurative polychrome motifs set against a monochrome geometric background, is very similar to some ancient Han Chinese textiles (see

Chapter 1, page 14, Fig. 4). In addition the motifs themselves, which include bats, dragons, phoenix, flowers, and butterflies, seem to be borrowed from Han Chinese iconography, with the exception of the ‘flying monkeys’, which are inspired by the local fauna.

The area where the Maonan live is relatively prosperous, with the possibility of two rice harvests per year. During a first survey in 2006, we could see numerous mulberry trees associated with silk production, most of which was sold in bulk for industrial silk processing, as well as small domestic cotton fields. By 2012 however the size of this cottage industry had shrunk considerably.

The Maonan share this region with the Zhuang ethnic group. Following numerous intermarriages, the ethnic situation is often confusing: several women interviewed for this book and weaving with Maonan looms were of Zhuang origin and could not speak the Maonan language.

The Mulao, a little known people, are considered very close to the Maonan and live in the same area. We have not had the opportunity to examine a Mulao loom, however. Structurally and iconographically Mulao weavings are similar to Maonan, with small motifs of flowers and beasts ‘floating’ on a geometric lattice background, but with distinct motifs. Some examples of Mulao weaving are included in Section 5.19. The loom and techniques that were used are undoubtedly closely related to Maonan weaving.



Fig. 1 A Maonan wedding bedcover from Huanjiang county, Guangxi province. The characteristic two-layer composition of figurative motifs set against a leiwen 雷纹 geometric lattice background is also seen on Han Chinese and Tujia textiles. Figurative motifs include birds, flowers and butterflies as well as bats. The bat is uncommon in

Southwest China's iconography as, contrarily to Chinese symbolism, most ethnicities in the region consider it a bad omen. Dimensions 141 cm × 87 cm. Silk floss supplementary weft on cotton groundweave, with some embroidery. Natural and synthetic dyes, nineteenth century. He Haiyan collection.

1 Lemoine [1978, 884].

2 Lemoine [1978].

3 土俗字.

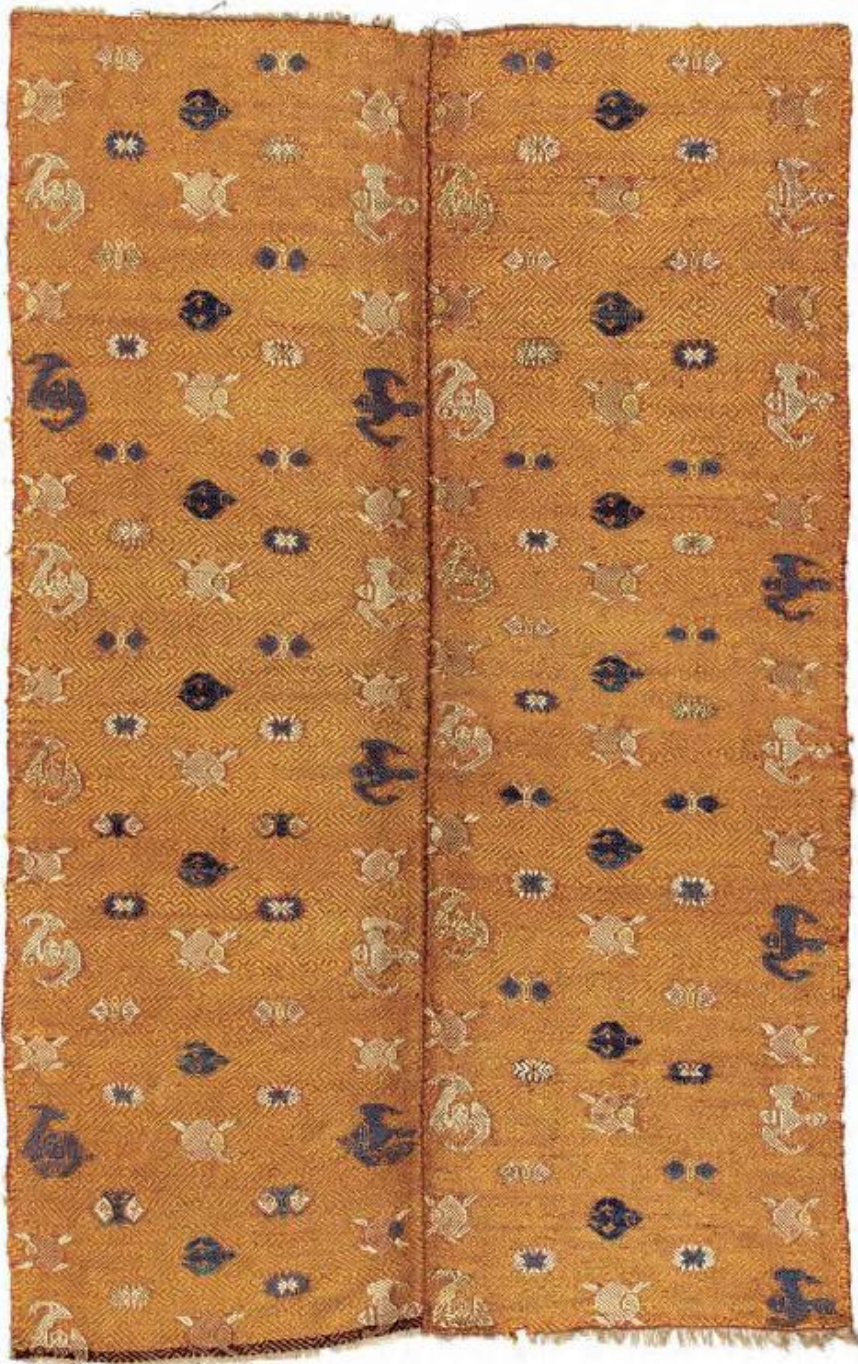


Fig. 1 Wedding bedcover, 130 cm × 81 cm, silk floss and cotton, natural dyes, nineteenth century. The choice of colours, restrained composition and the rare absence of an horizontal band makes this textile remarkable amongst Maonan bedcovers. Motifs include bats, 'water spiders', butterflies and flowers on a wanzi lattice ground. Private collection.

5.18 Maonan weaving in Huanjiang

Hegang and Wenping villages, Shuiyuan township, Huanjiang county in Guangxi province. 广西省，环江县，水原市，河钢村，温平村. Surveyed in August 2006, August 2012 and November 2012.

Subang village, Xianan township, Huanjiang county in Guangxi province. 广西省，环江县，下南镇，宿邦村. Surveyed in August 2006.

Hegang village

The village of Hegang is composed of about 100 households grouped around an old steel factory in an industrial valley, about 15 minutes from the large cities of Huanjiang and Huanjiang. The area is not visited by tourists. Houses are mostly recently made and spacious, constructed from brick and concrete. The village population is nominally Zhuang (with a few Han families), but the ethnic situation in this area is blurred: Maonan people interviewed in Subang village say that the Maonan who live in the valleys have 'lost their identity'. 'Zhuang' women in Hegang seem rather doubtful about their ethnic origins, (Maonan or Zhuang). Some women who are weaving Maonan style bedcovers say that they came from Maonan villages and brought their looms when they moved. The weaving technique in this village, using the large 'bamboo barrel' patterning system is distinctively Maonan however, and may have either been adopted by some local Zhuang women or preserved by Maonan women who married into Zhuang families. Most villagers speak Han Chinese and Zhuang but not the Maonan language.

In other areas most Maonan appear to have lost or are in the process of losing their weaving traditions. In 2005, during research among several Maonan villages in Pingtang County of South Guizhou province, located about 100 km to the north of Huanjiang County in Guangxi, we found older women who said they had never seen Maonan brocade weaving looms and that even their grandmothers did not know how to weave brocade.



Fig. 2 Hegang village, rice paddy in the foreground and striking karst scenery behind.

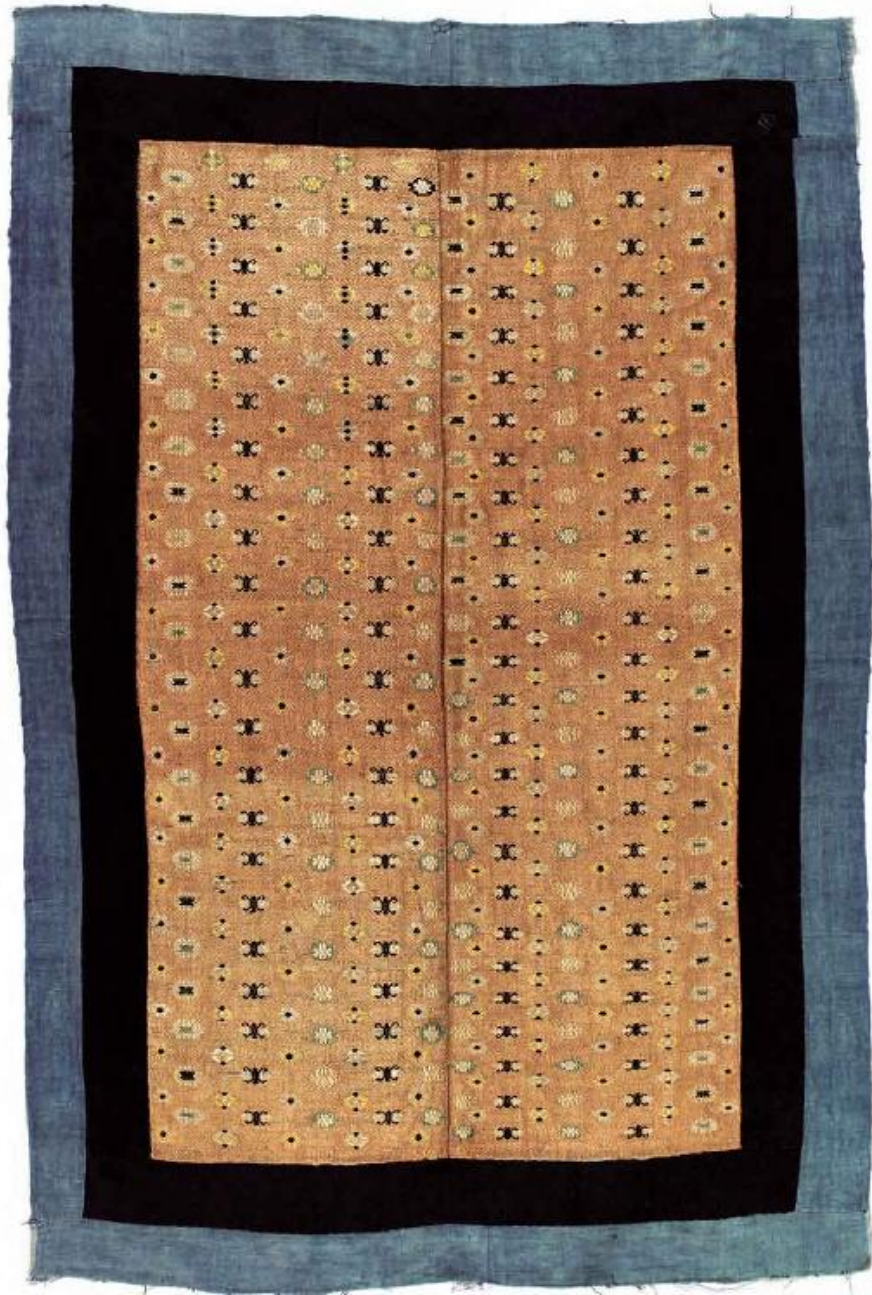


Fig. 3 Wedding bedcover, 125 cm × 75 cm, silk floss and cotton, natural dyes, nineteenth century. A rare and relatively restrained composition of stylised butterflies and flowers. He Haiyan collection.

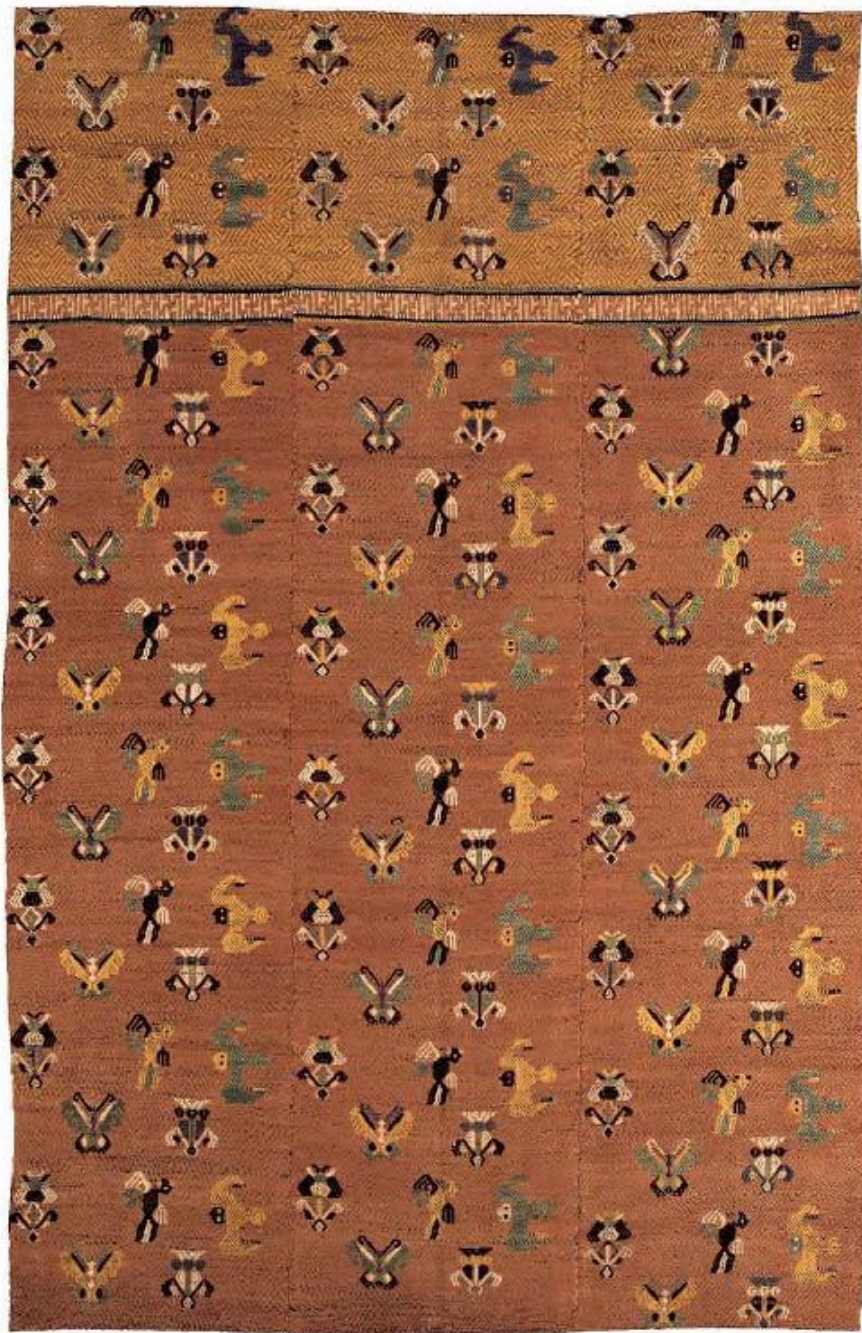


Fig. 4 Wedding bedcover, 134 cm × 88 cm, silk floss and cotton, natural dyes, nineteenth century. An outstanding example of a Maonan bedcover, from the point of view of colour, composition and weaving quality. Motifs include stylised bats, birds, butterflies and flowers. He Haiyan collection.



Fig. 5 (Top, middle) details of the front and reverse sides of the bedcovers in Figs. 3 and 4, showing the 'floating' motifs in discontinuous supplementary weft, on a geometric background of continuous supplementary weft. He Haiyan collection. (Below) detail of the front and reverse sides of a nineteenth century wedding bedcover fragment. The styles of the lion and bat motifs are distinctively 'Maonan' but share many similarities with Han Chinese iconography. Chris Hall collection.

Subang village

The Maonan village of Subang is difficult to reach, requiring a three hour journey by bus followed by a 15 minute ride on a motorized tricycle on a rough earthen road, from the large city of Huanjiang. Here, small 'bamboo barrel' looms are used to weave brocaded baby carrier panels. The weaving technique is the same as for Hegang wedding bedcovers but the pattern repeat is shorter, with fewer

patterning rods and a smaller 'drum'. Subang has about 60 households, mostly traditional in style with only a few modern houses. From an ethnic standpoint the inhabitants seem to be entirely Maonan.

Huanjiang county is rich and fertile, with two rice crops a year. Mulberry trees were still quite a common sight along the roadside in 2006, but local people said that most of the local silk production was sold wholesale in the form of cocoons to the silk industry. By 2012, from what we could observe, domestic silk production had drastically diminished.

In Hegang we interviewed two weavers; Zhou aged seventy-two in 2006 (now deceased) and Tan, 'in her sixties' in 2012. In Subang a third weaver, also surnamed Tan, aged 55, contributed to this research in 2006. In 2006 Zhou told us that she did not weave bedcovers for her daughter's wedding and that her daughter did not want to learn weaving; she also stated that at the time of her youth, young women had to weave their wedding bedcovers themselves; she herself wove four wedding bedcovers for her own wedding. In our return visit in 2012 brocade weaving was still present, but it appeared that most bedcovers were being woven to fulfil orders from shops in tourist areas. In both Hegang and Subang, the transmission of the brocade technique from mother to daughter appears to have ceased.

In 2012 the village of Hegang we were able to find four remaining weavers, who were aged between 55 and 75, with the exception of a single weaver in her forties. The youngest weaver told us she rarely weaves: her loom was dismantled and in an attic room at the time of our visit.

In Subang, we were able to find five brocade looms in 2006 but only three of them were in use, the other two belonged to weavers who were too old to weave. Tan said that this situation was the exception to the rule: in most other local villages brocade weaving was already extinct, and Subang weavers often wove to commission for surrounding communities. Curiously, the baby carrier panel that Tan was weaving during our visit was decorated with a pattern (called *wa diok* in Maonan language; Fig. 6) that is typical of the brocades woven by the Buyi weavers living in the Libo area of South Guizhou, about 100 miles away to the north.



Fig. 6 A baby carrier panel with the wa diok motif, partly woven on a loom in Subang village.

In 2006, Zhou in Hegang village was still using home grown and hand-spun cotton yarn for the warps of the brocade she wove. She told us that she treated the yarn by boiling it in rice water (starch) and dyed it in natural indigo. She said that this traditional yarn was stronger and easier to manipulate, as it was less likely to become tangled. However she had already switched to commercial cotton for ground wefts and to commercial silk pre-dyed with synthetic colours

for supplementary wefts. In 2012 in Hegang, all the yarns we saw mounted on looms were of the commercial type.

In Subang in 2006, Tan used commercial cotton yarn for the warp and the ground wefts and commercial silk for the supplementary wefts. Her husband stated that during the 1960s and the 1970s, every household was growing and spinning cotton, but that this was abandoned in the early 1980s.

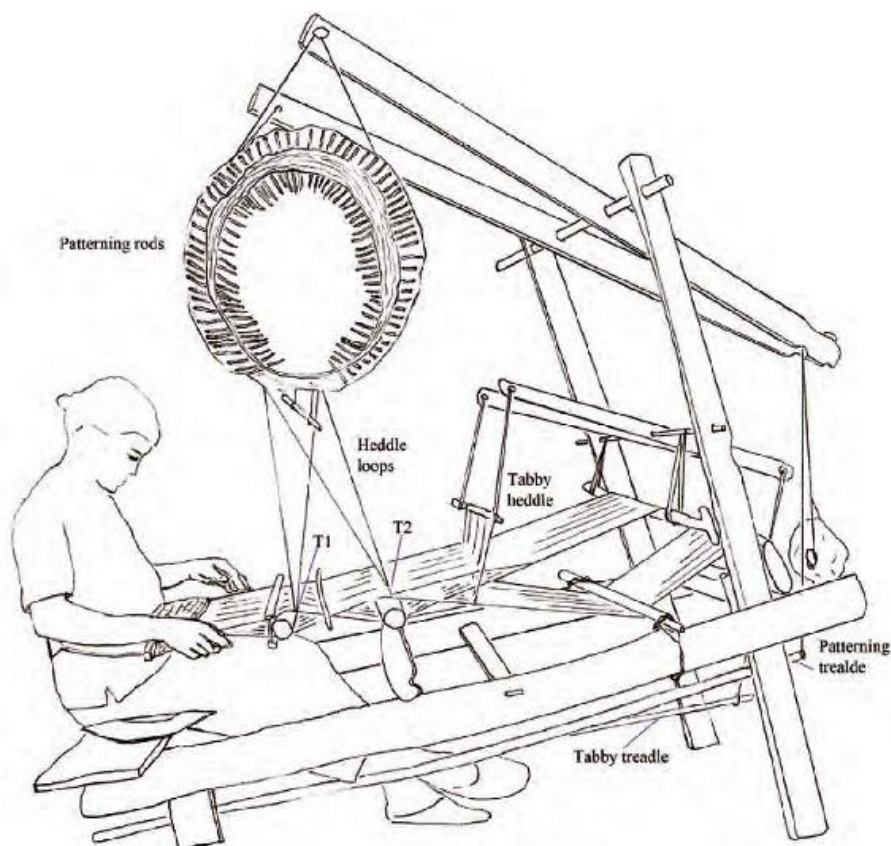


Fig. 7 Zhou at her loom in Hegang.

The loom

The Maonan in Hegang and Subang use a back-tensioned frame loom with two long wooden treadles. The right treadle is used to raise the two levers where the patterning system, made of patterning rods attached around a bamboo 'barrel' hangs. A heavy stone counterweight is suspended at the back to balance the weight of the barrel. The left treadle is used to raise the tabby heddle via a similar mechanism (Figs. 7 and 13).

The patterning rods around the bamboo barrel are embedded in the

long heddle-leashes attached to the warps. The number of patterning rods is equal to the number of supplementary wefts rows (one rod corresponds to one row composed of two supplementary wefts, usually one discontinuous and one continuous) forming the pattern.

The tabby ground wefts are inserted with a beater-shuttle, the continuous supplementary wefts with shuttles and the discontinuous supplementary wefts by hand. Lengths of yarn are cut in advance for this purpose (Fig. 14).

Building the patterning system

The elder Zhou (deceased) said she was the only weaver in the village who was able to build a patterning system (Figs. 7–12), and that she could reproduce any motif shown to her: this was confirmed by other weavers of the village. She said that she was much solicited by local authorities in the 1950s, especially during the Korean War when she remembered creating a patterning system and weaving panels bearing anti-American slogans in Chinese characters. It usually took her two days to make a bamboo barrel patterning system.

In Hegang, Zhou stated that weavers in the past only wove brocade for wedding bedcovers, a tradition that is now abandoned. Zhou herself started to learn brocade weaving from her mother at the age of 15 (in 1949); her daughter did not learn.

In Subang in 2006, we found Tan weaving the central panel of a brocaded baby carrier for her daughter's wedding. She said that the tradition of weaving wedding bedcovers had completely disappeared in this mountainous area. A 66 year-old woman from the village said that she presented six wedding bedcovers for her wedding (about 1960), but already at that time, neither her nor her mother knew how to weave brocade so the bedcovers had to be ordered from a professional weaver.



Fig. 8 Patterning rods are positioned around a huaben, a rotating 'barrel' made of bamboo.



Fig. 9 Replacing the patterning rod at the front of the huaben.



Fig. 10 The front and back patterning sheds are opened with two bamboo tubes, T1 and T2.

Weaving technique

The technique described below is the one used to weave wedding bedcovers panels in Hegang village; the principle is the same for the Subang loom.

The reverse of the brocade faces up when it is mounted on the loom.

There are two rows of supplementary wefts between each row of ground weft, as a result of which the brocade that is woven is unusually thick and silky.

Both continuous and discontinuous supplementary wefts are inserted in the sheds programmed by the patterning system. During the first ‘barrel’ rotation, discontinuous supplementary wefts are inserted in the front shed; while continuous supplementary wefts are inserted in the back shed. During the next rotation, the process is reversed (see ‘Note on Daic Complex Pattern Heddles’, Section 5.2)

Unlike most other looms equipped with a patterning system of this type, the motifs woven do not necessarily have reflection symmetry, since the weaver rotates the ‘barrel’ patterning system in one direction only. The motifs are produced as repeats along the warp direction.

The weaver pulls down a patterning rod located at the back of the ‘barrel’, leaning forward to reduce the warp tension.

Holding and pulling down the rod with one hand at each end, the weaver moves the rod back and forth in order to separate the heddle leashes in two groups, one at the back, one at the front. A wooden

stick is then introduced to separate the two groups of heddle leashes (Fig. 12). The patterning rod is then removed and reinserted at the front of the 'barrel' (Fig. 9). While the wooden stick is pushed down in order to enlarge the back and front patterning sheds, a wide bamboo tube T2 is introduced into the back patterning shed, and another tube T1 is placed in the front patterning shed (Fig. 10). The reed is pushed against the tube T1 at the front.

Coloured discontinuous supplementary wefts are then inserted by hand into the front patterning shed (Fig. 14) while the weaver leans back to increase warp tension. This weft is beaten-in lightly with the reed. The bamboo tube T1 located at the front is then taken out and the bamboo tube T2 located at the back is pulled forward against the reed, opening the second patterning shed (the reverse of the first patterning shed) where the continuous supplementary weft is inserted with a shuttle. The bamboo tube T2 is removed and the continuous weft is beaten-in lightly with the reed.

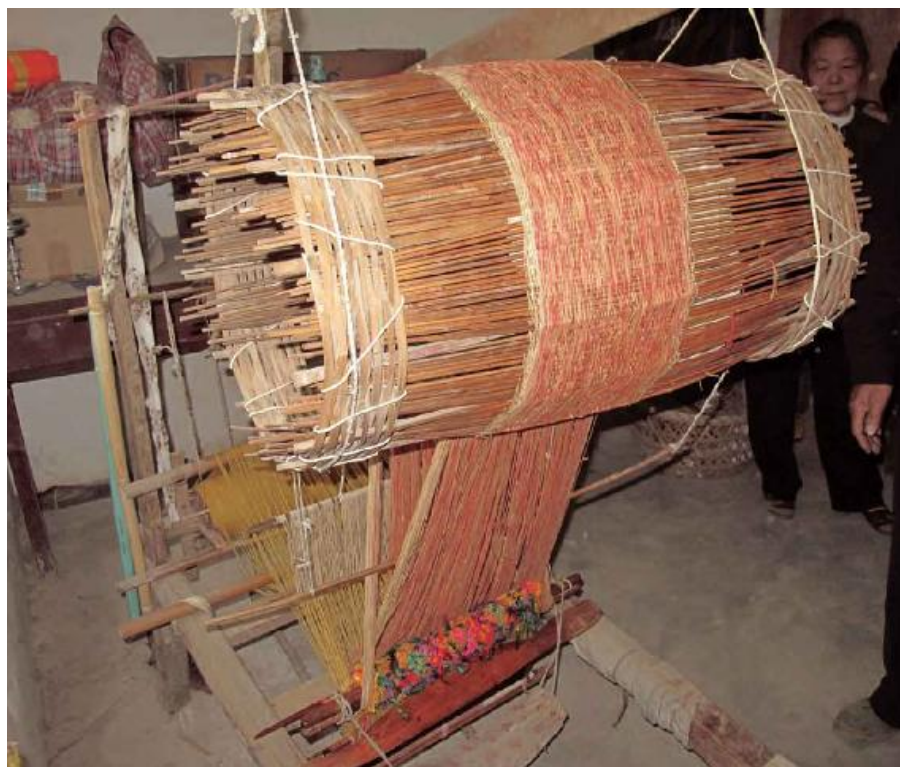


Fig. 11 Tan's loom, Hegang. The weaving is rolled up when not in use.

The patterning heddle leashes which were separated in two (back and front) groups are then reunited and the tabby weave shed is opened (alternating between natural shed and counter shed by pushing down

the treadle), and a ground tabby weft is inserted with a beater-shuttle. The ground weft is then beaten-in firmly with the beater-shuttle.

An experienced weaver can produce about 20 centimetres of brocade per day. Weaver Zhou in Hegang, who was considered a master, said she could produce up to 50 to 60 centimetres a day when she was young, assuming that she was free from domestic chores. As both continuous and discontinuous supplementary wefts are inserted in sheds that are programmed by the patterning system, this brocade technique is one of the fastest amongst looms equipped with a patterning system. Other Daic groups, such as the Dong in Tongdao, must insert discontinuous supplementary weft by counting warps for each float, making their work significantly slower by comparison.



Fig. 12 Separating the heddle loops before opening the pattern shed.



Fig. 13 The tabby heddle is pulled up by depressing a treadle, opening the tabby counter shed.



Fig. 14 Inserting discontinuous supplementary wefts.

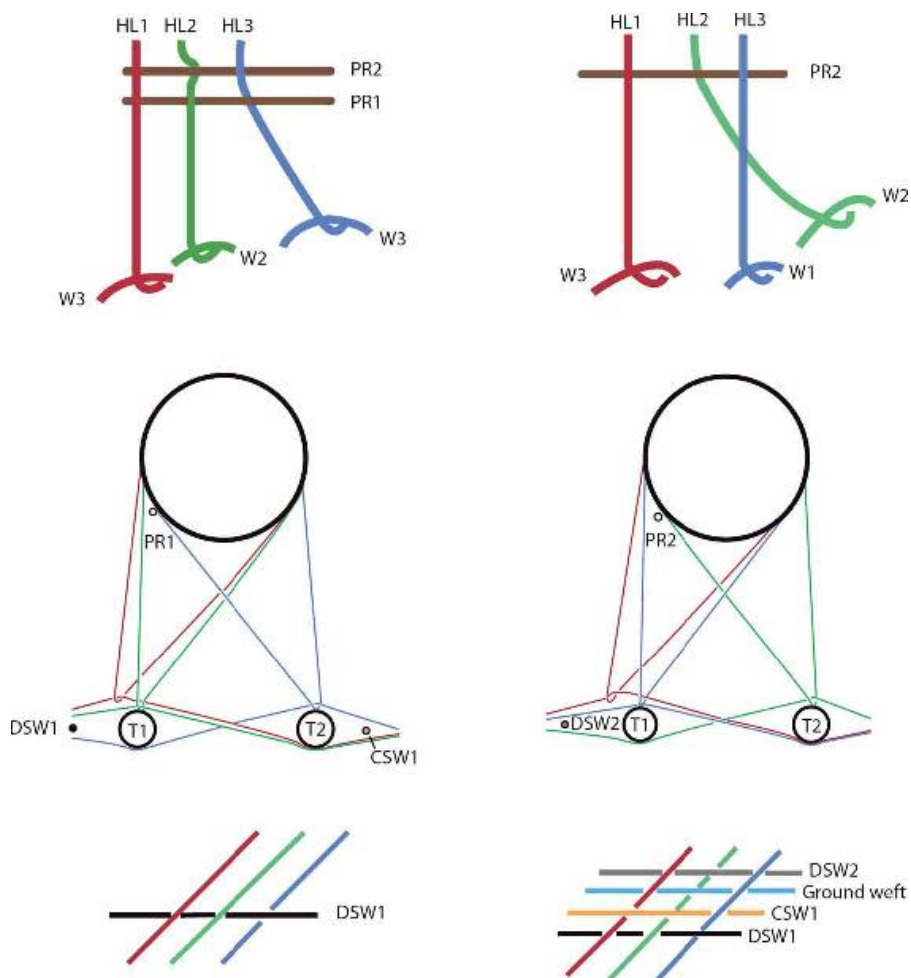


Fig. 15 Diagram showing two successive positions of the huaben's rotation and the corresponding weft insertions. HL= heddle loop, W= warp, PR= pattering rod, T= tube, DSW= discontinuous supplementary weft, CSW= continuous supplementary weft.

Loom characteristics

Hegang loom in 2012:

170 pattering rods on one loom, 184 on another loom.

386 warps on one loom, 384 on another loom.

One warp per reed space.

'Barrel' diameter: 42 to 44 centimetres.

Brocade width: 38 centimetres.

Subang loom in 2006:

28 pattering rods (58 on another loom).

206 warps.

'Barrel' diameter: 13 cm.

Brocade width: 25 cm.

Wefts are beaten-in with a flat wooden blade.

Glossary of Terms

The Maonan call themselves *jiang nan* (*gniang gnan*) in their language, they refer to the Zhuang as *yang yei*.

To weave: *dam*

Loom: *zhung*

Warp: *yang*

Weft: *mei donb zha*

Warp beam: *na*

Cloth bean: *bap bit*

Reed: *fei*

Heddle: *gao*

Bamboo 'barrel': *yong*

Shuttle: *doll/dull* (same for shuttle beater)

Brocade: *na lang* (in Maonan: *nu*)

Wedding bedcover: *zhang*

Baby carrier: *met*

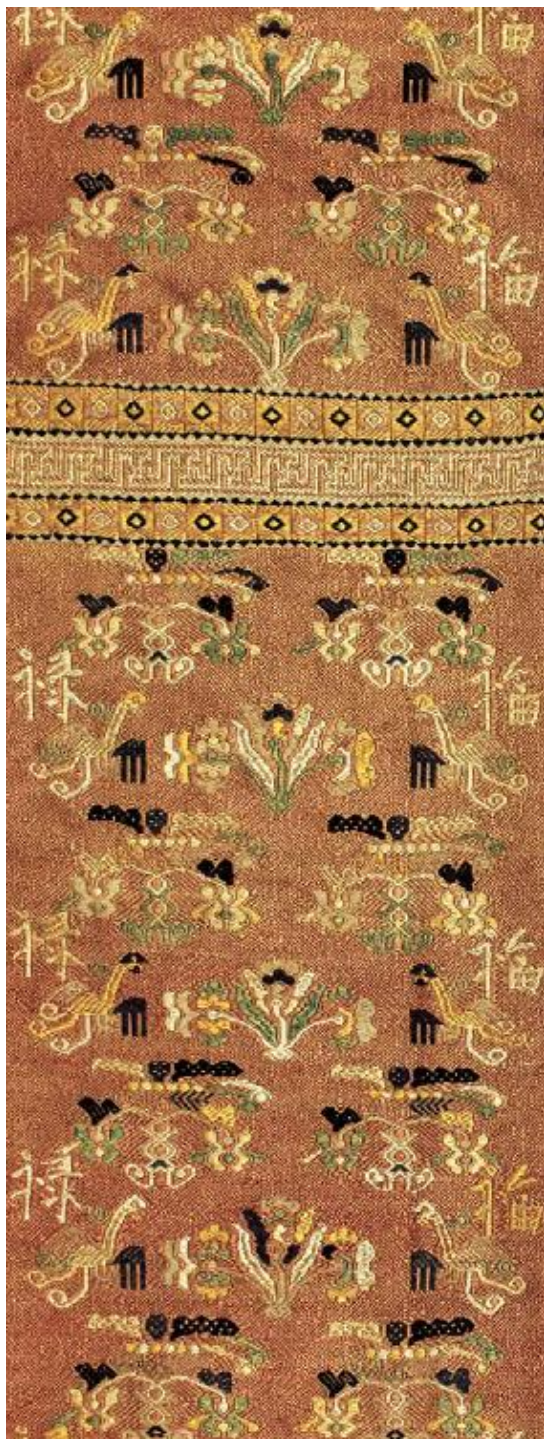


Fig. 16 Detail of the bedcover in Fig. 20, showing several motif repeats, as well as the band of geometric designs that is characteristic of many Maonan weavings. Motifs include pairs of phoenix, flowers and auspicious Chinese characters. Private collection.

Structural analysis

Supplementary weft compound tabby used for wedding bedcover panel, 38 cm wide (baby carrier panel: width 25 cm). Thread count: 9 warps, 30 wefts (10 ground wefts, 20 supplementary wefts) per cm. Nineteenth century.

Warps: off-white domestic hand-spun cotton, 2-ply, S-spun.

Ground weft: off-white hand-spun cotton, single-ply, Z-spun.

Supplementary weft: silk floss with natural vegetable dyes: golden yellow (background), indigo blue, green, beige; single-ply, no apparent torsion.

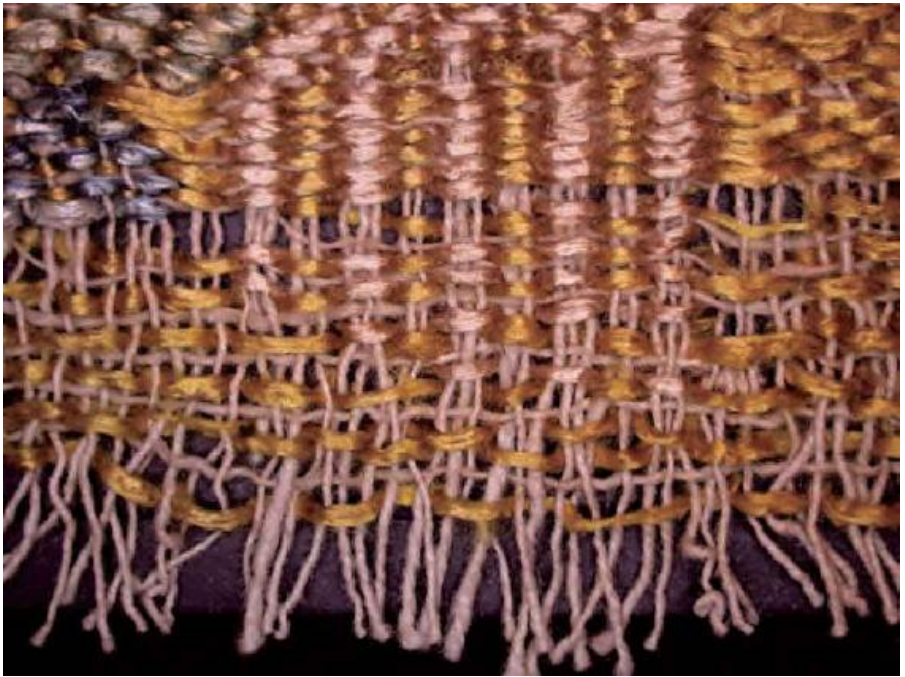


Fig. 17 Weave structure, blue and green discontinuous supplementary wefts, yellow continuous supplementary wefts.

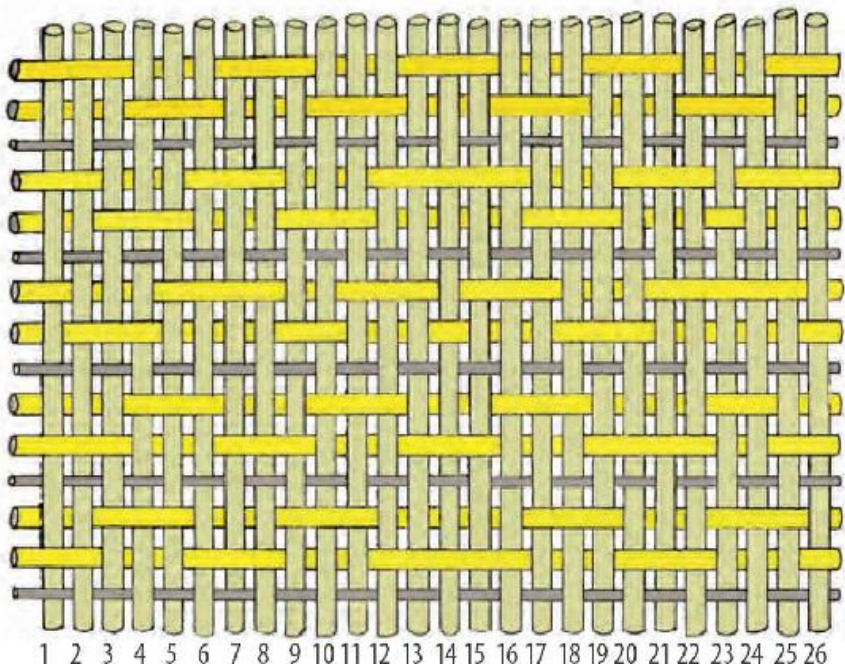


Fig. 18 Weave structure, continuous supplementary wefts forming the background.

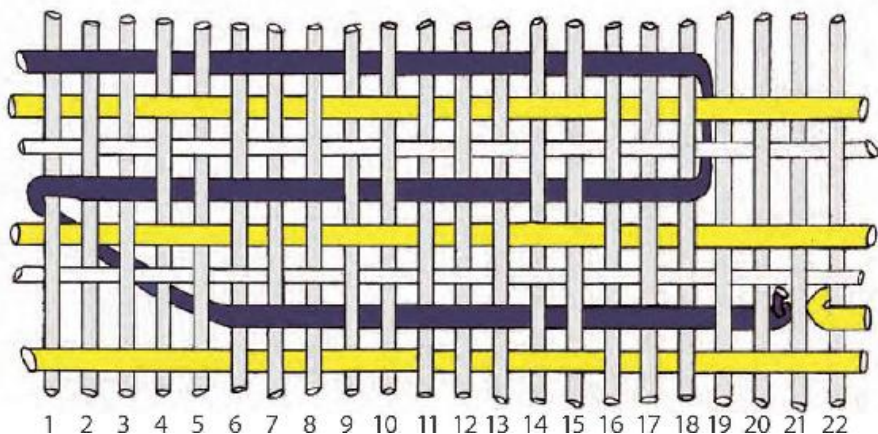


Fig. 19 Weave structure, the blue threads are discontinuous supplementary wefts forming the foreground motifs.

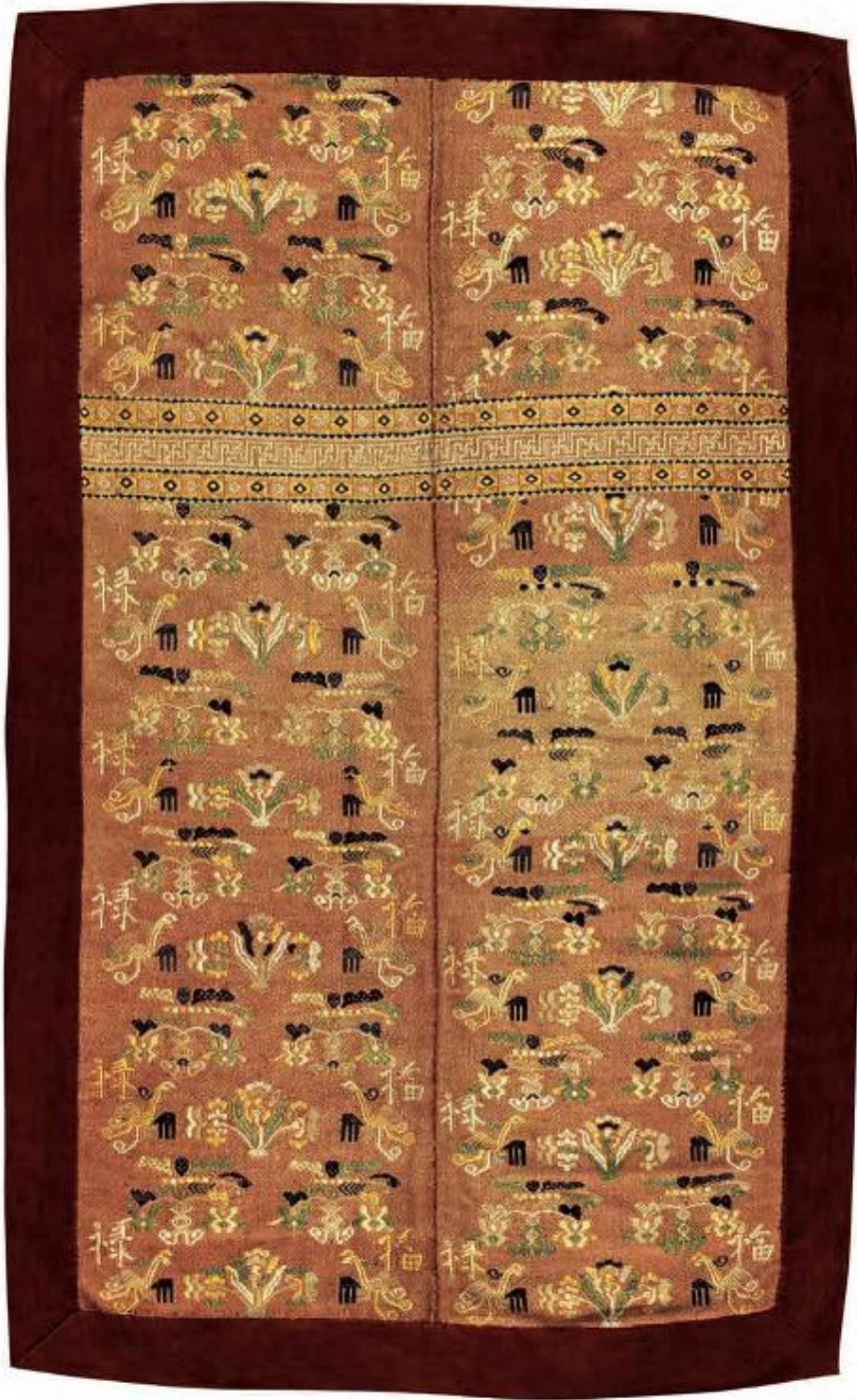


Fig. 20 Wedding bedcover, 137 cm × 79 cm, silk floss and cotton, natural dyes, nineteenth century. Private collection.



Fig. 21 Maonan wedding bedcover, 131 cm × 70 cm, silk floss and cotton, natural dyes, nineteenth century. He Haiyan collection.

5.19 Mulao weaving in Huanjiang



Fig. 1 Mulao wedding bedcover, 109 cm × 68 cm, cotton, natural dyes, nineteenth

century. He Haiyan collection.



Fig. 2 Mulao wedding bedcover from North Guangxi province. Silk and cotton supplementary weft on cotton ground. 107 cm × 60 cm. Early part of the twentieth

century. He Haiyan collection.



Fig. 3 Details of two Mulao wedding bedcovers, silk and cotton supplementary weft on cotton ground. Early part of the twentieth century. Private Collection.

5.20 The Zhuang

The Zhuang are the largest ‘minority’ in China with a population estimated to be about 17 million.

The term Zhuang, which has been used in Chinese texts since the twelfth century CE, became the official name in the 1950s for a Daic group living mainly in Guangxi. Before that time they called themselves Bu, Budai, Bunong, Buyai or Buban in their own language, and, at least in regions located near the border between Northwest Guangxi and Southwest Guizhou, they were not clearly distinguished from the people who are still called ‘Buyi’ in that area. The Zhuang’s ancestors are believed to belong to the Bai Yue group, who were present in southern China at least two thousand years ago and were recorded as living in Guangxi in 213 BCE.¹ They often rebelled against Han authority, and sometimes succeeded in establishing small kingdoms such as Zangze around 700 BCE, Zangguo during the Han period and Nantianguo, founded in 1049 CE at the time of the Song dynasty.

In Zhuang mythology the Frog Goddess Maguai, daughter of Leiwang, the King of Thunder, is the most important deity. She is associated with bronze drums, often decorated with four or six small frogs on top face, that are meant to reproduce her call in order to bring rain. Every year during the Wapo or Jinwa festival, a frog is buried and the one interred the previous year is taken out, the bones being examined to predict the rain for the year to come. Ancient cliff paintings on the Huashan site, along the Zuojiang river, dated between 1800 and 2500 years ago, show ceremonies that have been interpreted as depictions of these rituals.

Weaving occupies a fundamental place in Zhuang mythology; Dabu, the ‘Widow’ in Zhuang language, is a legendary heroine who is emblematic of the model weaver. According to the legend, a woven blanket that she had hung outside to dry was stolen by a goddess, who later returned it in giant form, able to protect the whole village. During the Ming dynasty, Zhuang brocades paid as tribute to the Imperial court were called *tian* 綵. A Zhuang adage about brocades says that ‘Red and green go well together and cannot be vulgar; a dark background with vivid motifs is beautiful, a light background with dark motifs is also good.’²



Fig. 1 Panel woven for a Zhuang wedding bedcover in Binyang, Guangxi province, 140 cm × 37 cm, silk floss and cotton, natural vegetable dyes, nineteenth century. The quality of the green dye (which is obtained by dyeing the yarn in indigo and vegetable yellow dye) is exceptional. Private collection.



Detail of Fig. 1.

1 Lemoine [1978].

2 红配绿，不能俗；深地亮花好看，浅地暗花也不丑。



Fig. 1 Wedding bedcover, 132 cm × 110 cm, silk and cotton, natural vegetable dyes, nineteenth century. Private collection.

5.21 Zhuang weaving in Binyang



Fig. 2 Baby carrier, 66 cm × 38 cm, silk and cotton, early part of the twentieth century. He Haiyan collection.

Binyang county, south-central Guangxi province. 广西省, 宾阳县.
Surveyed in November 2012.

In this area we found that traditional brocade weaving has disappeared from the villages in most of the countryside, however the skills have been retained thanks to a government policy that started in the 1950s, sponsoring the creation of urban workshops, each equipped with a dozen or so looms. Guangxi province is an ‘autonomous Zhuang region’ and it was always important for the authorities to present an image of preserving local Zhuang traditions. This is why, quite soon after the establishment of modern China, workshops were opened in cities such as Binyang and Jingxi, where Zhuang weavers, working for the state, produced both traditional bedcovers and modern wall hangings. Workshop managers told us that these are offered as gifts by local officials while on trips to other areas of China or abroad. The workshops are still active and continue to produce official ‘gifts’, though they have now diversified into weaving decorative textiles for tourist shops.

Lu Qingxiu, who was interviewed for this survey, is 72 years old and has worked all her life in a state sponsored weaving workshop. Even though she is now retired she has collected six looms in her house and

is still weaving 'for the pleasure of it'.

She said that in the past, warps and tabby ground wefts were made of locally grown and hand-spun cotton. Coloured supplementary wefts were made of domestically produced silk. Now Lu uses commercial yarn for both warps and wefts.

In a rare occurrence amongst the brocades of Southwest China, old Zhuang wedding bedcovers from Binyang were woven with yarns not only dyed with vegetable dyes but also with mineral pigments (Fig. 8). Two mineral pigments were found on an ancient Binyang wedding bedcover during the research for this book.¹ This represents a rare, perhaps unique, survival of a textile colouring technique that was thought to be extinct.² Mineral pigments are commonly found on textiles from the Han dynasty and earlier, and a *kesi* specialist, Zhao Xiaocheng, confirmed to us that similar mineral pigments were also used *kesi* textiles dating back to the Yuan dynasty. The only other evidence of recent use of mineral pigments in textile making that we have found is the report of a red pigment that was formerly used by Zhuang people in the Napo area.



Fig. 3 Child's bedcover, 60 cm × 57cm, silk and cotton, early part of the twentieth century. He Haiyan collection.

More recently made bedcovers are almost all decorated using the same bright pink synthetic-dyed silk wefts, punctuated by small motifs in other synthetic colours. Older bedcovers woven with naturally-dyed yarns are extremely rare.

Zhuang Binyang wedding bedcovers often possess the distinctive feature of a wide border running along the four sides, which is woven as an integral part of the supplementary weft design, rather than being added later. Traditional patterns are all very similar, consisting of small geometric motifs, organized around a common diamond-based structure; stylized animals, such as horses, are also sometimes included.

The brocading technique was mostly used to produce rectangular wedding bedcovers made of three (sometimes two) panels, as well as square bedcovers for baby's cribs made of two panels. Some long

rectangular horse covers were also made from two brocaded panels (Fig. 12).



Fig. 4 Wedding bedcover, composed of three panels, 164 cm × 100 cm, cotton, natural vegetable dyes, nineteenth century. He Haiyan collection.

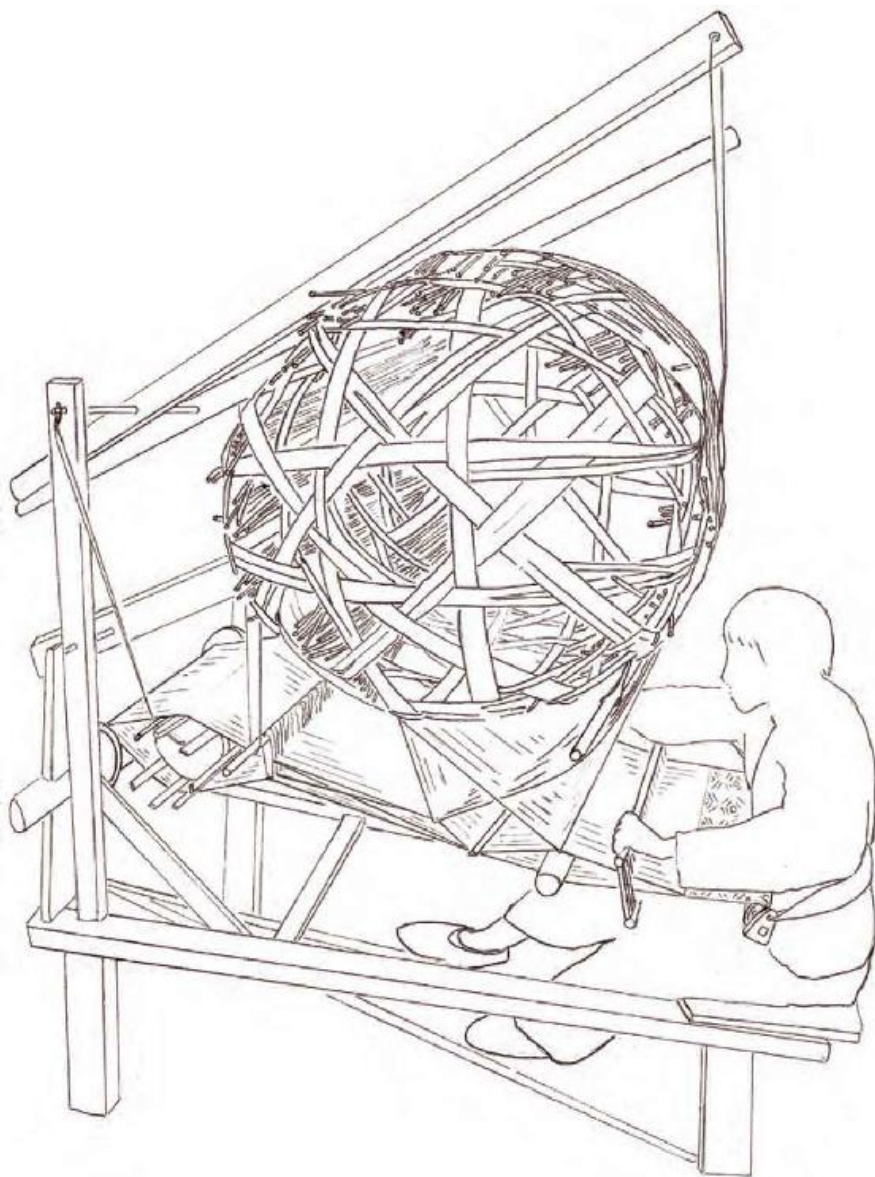


Fig. 5 Lu Qingxiu at her loom.

The loom

Zhuang brocade weavers in Binyang use a back-tension frame loom with two longitudinal wooden treadles.³ The right treadle is used to raise two levers from which the patterning system hangs. This consists of a set of pattern rods held in heddle leashes around a ‘cage’.

The pattern heddle is called a *zhulong* 竹笼 (bamboo cage), this is sometimes written 猪笼 (pig cage), since it resembles the cages used by farmers to carry pigs to the market. A heavy stone counterweight is suspended at the back of the loom to balance the weight of the bulky heddle. Thus balanced, the whole assembly can be raised with relatively light pressure on the foot treadle. The left treadle is used to raise two levers pulling up the single tabby heddle.

Each pattern rod divides the long heddle leashes attached to the warps into two groups: an active group that will be used to raise a group of warps for weft insertion, and the inactive remainder. The number of patterning rods is equal to the number of rows of supplementary weft (one rod corresponds to one supplementary weft) forming half of a symmetrical pattern repeat. After weaving the pattern will have reflection symmetry with the axis of symmetry along the weft direction. A section of the circumference of the bamboo cage is left clear of patterning rods, where the pattern heddle leashes are attached to the cage by two knots in order to maintain an even tension in the leashes.



Fig. 6 Lu's loom.

Lu says that she is able to build a patterning system (arranging the bamboo patterning stick and the heddle leashes on a cage) for any type of pattern provided to her. This is a skill of a much higher order than the basic weaving process on the loom.

The tabby ground wefts are inserted with a shuttle, the discontinuous supplementary wefts by hand (lengths of yarn are cut in advance). Lu used only discontinuous supplementary wefts for patterning the brocade that she was working on during our visit.

Loom characteristics

Total number of warps: 768

Number of warps per reed space: 2

Brocade width: 50 cm

'Bamboo cage' diameter: 40 cm

Weft beaten-in with a beater

Weaving technique

The reverse side of the brocade faces up while it is on the loom.

As noted, the 'bamboo cage' heddle is designed to produce a pattern repeat composed of two successive, symmetrical halves. When the weaver has used all the rods for one half of the pattern the direction of rotation of the cage is reversed in order to weave the second half (See Section 5.2). The same procedure is followed by Dong and Buyi weavers in districts where looms of this type are used.

According to Lu, for each patterning rod, there are two successive insertions of supplementary patterning wefts. However, our structural analysis of older textile fragments showed a range in the number of wefts inserted. Lu only uses the front patterning shed, twice, alternating with the insertion of one ground weft. In practice, the number of ground wefts inserted between two rows of patterning supplementary wefts as well as the number of supplementary wefts inserted in the same patterning shed varies from one weaver to another. On the fragment that we analysed (Fig. 11), three ground wefts alternate with one row of supplementary weft and there are no double insertions of supplementary wefts in the same shed.

During the clockwise rotation of the 'bamboo cage', the weaver pulls down a patterning rod located at the back of the 'bamboo cage', while leaning forward to reduce the warp tension. Holding and pulling down the rod with both hands, she moves the rod back and forth in order to separate the heddle leashes into two groups, one at the back, one at the front (Fig. 9). While continuing to lean forward to reduce the warp tension and enlarge the shed opening, she introduces a wooden stick to separate the two (back and front) groups of heddle leashes. The patterning rod is then reinserted at the front of the 'bamboo cage'.



Fig. 7 Details of the front and reverse sides of the wedding bedcover in Fig. 8, showing discontinuous supplementary patterning wefts (indigo cotton and variously coloured silk yarns).

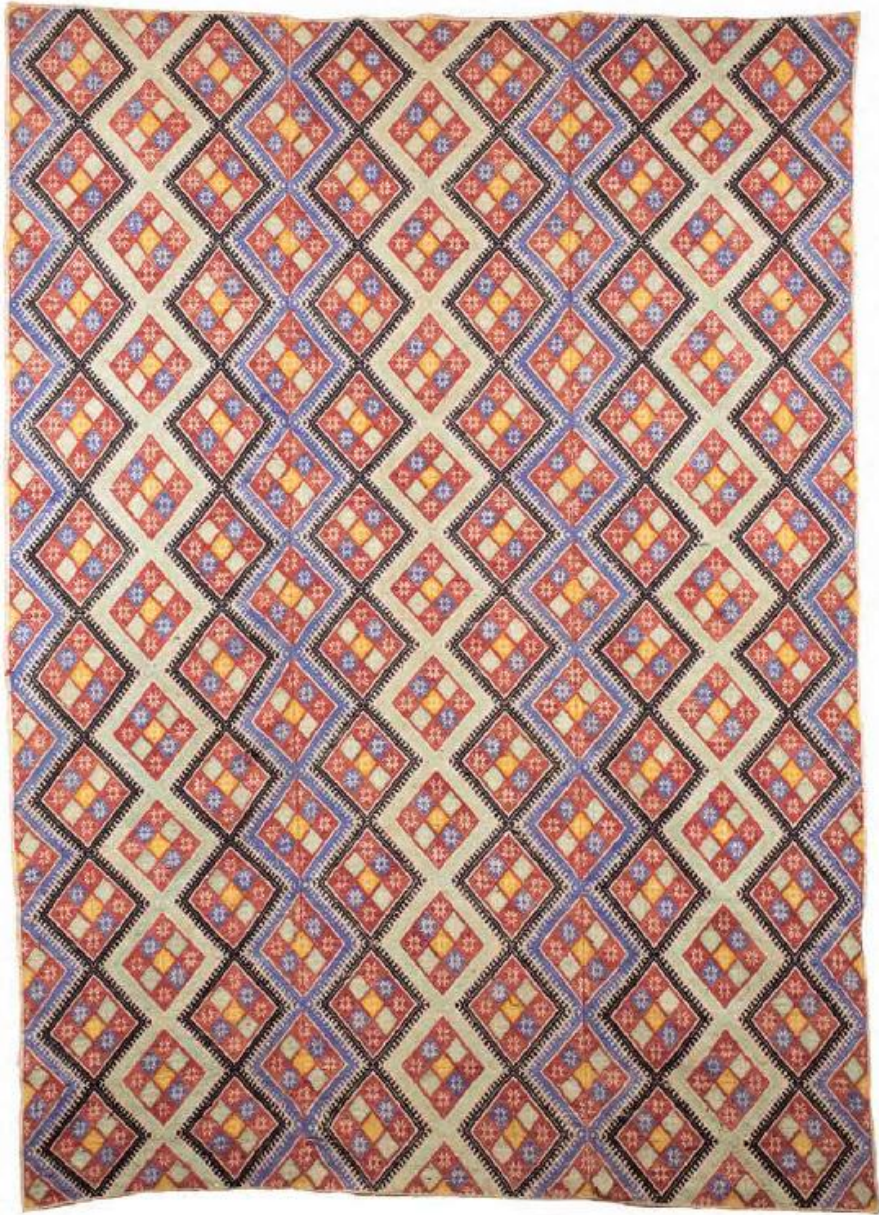


Fig. 8 Wedding bedcover, 150 cm × 106 cm, silk and cotton, pigments and vegetable dyes, early part of the twentieth century. He Haiyan collection.



Fig. 9 (Clockwise, from the left) separating the heddle loops in two groups. Re-inserting the pattern rod at the front of the 'bamboo cage'. Introducing a tube in the front patterning shed.

While the wooden stick is pushed down in order to widen the back and front patterning sheds, a bamboo tube (sometimes replaced by a plastic tube) is introduced in the front patterning shed (Fig. 9). The reed is pushed against the tube. The coloured discontinuous supplementary wefts are inserted by hand into the front patterning shed while she leans back to increase warp tension. The weft is beaten-in lightly with the reed.

The bamboo tube is then removed from the patterning shed and re-inserted at the back, under the heddle, in order to open the tabby weave counter shed where one row of tabby ground weft is inserted with a shuttle. The tube is then inserted once more into the front patterning shed for a second insertion of supplementary weft. The patterning heddle leashes which were separated in two (back and front) groups are then reunited and another row of tabby ground weft is inserted in the natural shed.

A professional weaver in the workshops weaves about 50 centimetres in an eight-hour day. This is relatively fast compared with other looms that we examined, mainly because the pattern heddle speeds up the selection of warps for supplementary weft insertion.



Fig. 10 A horse blanket, composed of two panels 162 cm × 66 cm, silk and cotton, early part of the twentieth century. He Haiyan collection.

Structural analysis

Textile type: supplementary weft compound tabby used for a wedding bedcover panel, second half twentieth century. Panel is 30 cm wide (may be as wide as 50 cm on some looms), pattern repeat: 4 cm, divided in 2 symmetrical halves of 2 cm each.

Thread count: 20 warps, 36 ground wefts per cm.

Warp: white cotton, 2-ply, S-spun.

Ground wefts: white cotton, single-ply, S-spun.

Supplementary wefts type 1: dark indigo blue cotton, 4-ply, S-spun.

Supplementary wefts type 2: silk floss in brownish pink (synthetic dye), single-ply, no apparent torsion.

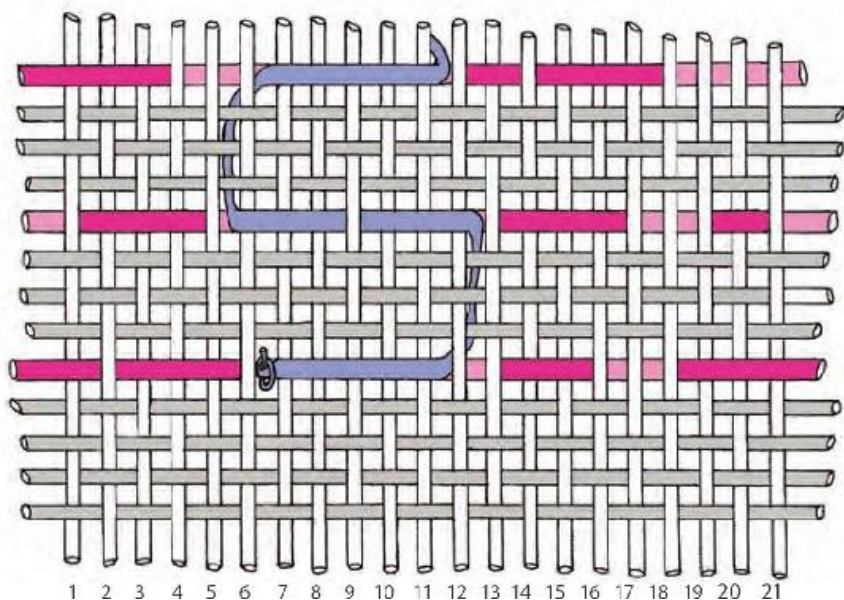


Fig. 11 Weave structure of a wedding bedcover.



Fig. 12 Detail of the reverse side of the wedding bedcover in Fig. 16.



Fig. 13 Wedding bedcover, 157 cm × 112 cm, silk and cotton, mid twentieth century. He Haiyan collection.

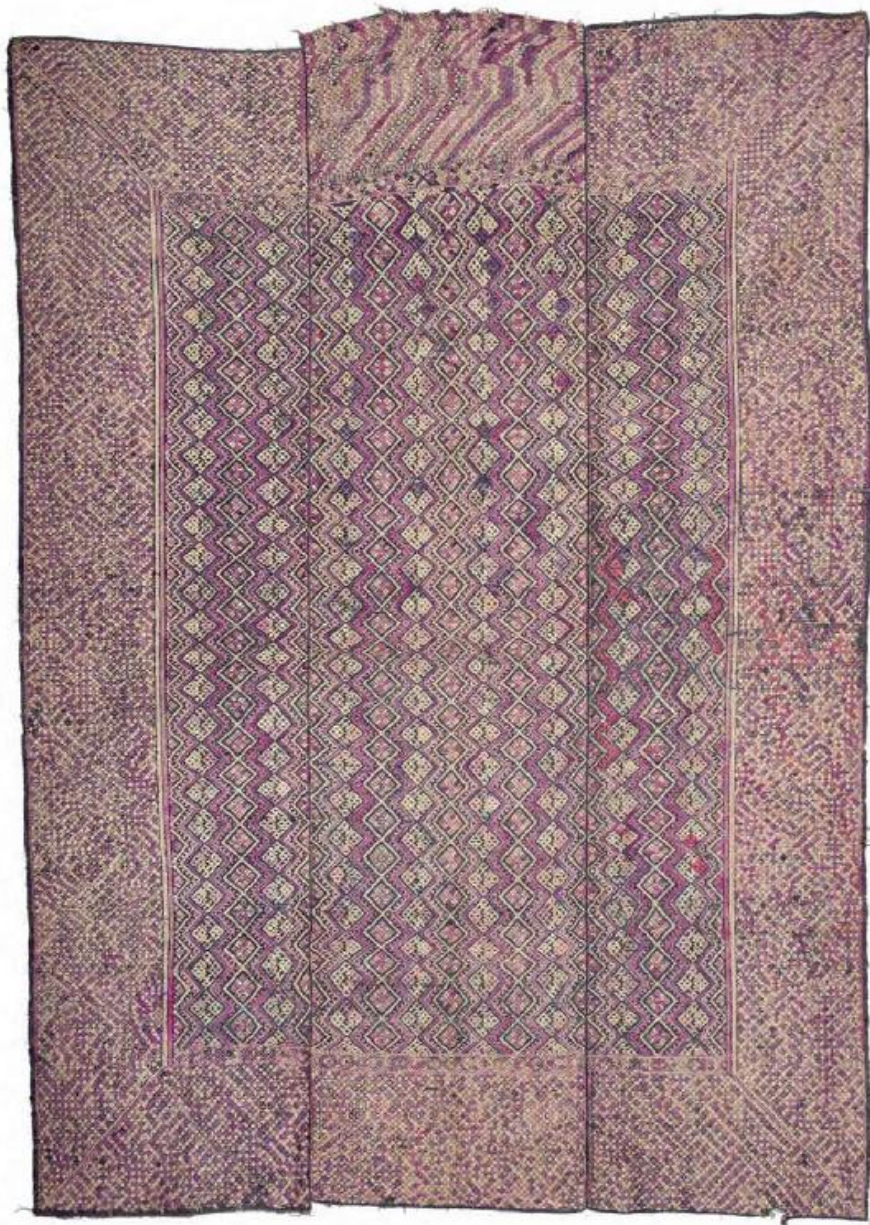


Fig. 14 Wedding bedcover, 145 cm × 103 cm, silk and cotton, early twentieth century. Private collection.



Fig. 15 Wedding bedcover, 138 cm × 103 cm, silk and cotton, indigo and synthetic dyes, early twentieth century. He Haiyan collection.

¹ We would like to thank the Beijing Fashion Institute Laboratory for their help in identifying these pigments.

² Chen [1992, 97] mentions the extensive use of mineral pigments in textile colouring in early China; he mentions malachite for green and azurite for blue. The laboratory findings, though pointing with certainty to the use of pigments as

opposed to dyes, could not confirm their identities.

³ This loom and its mechanism have also been the subject of an analysis by Li et al [2013].

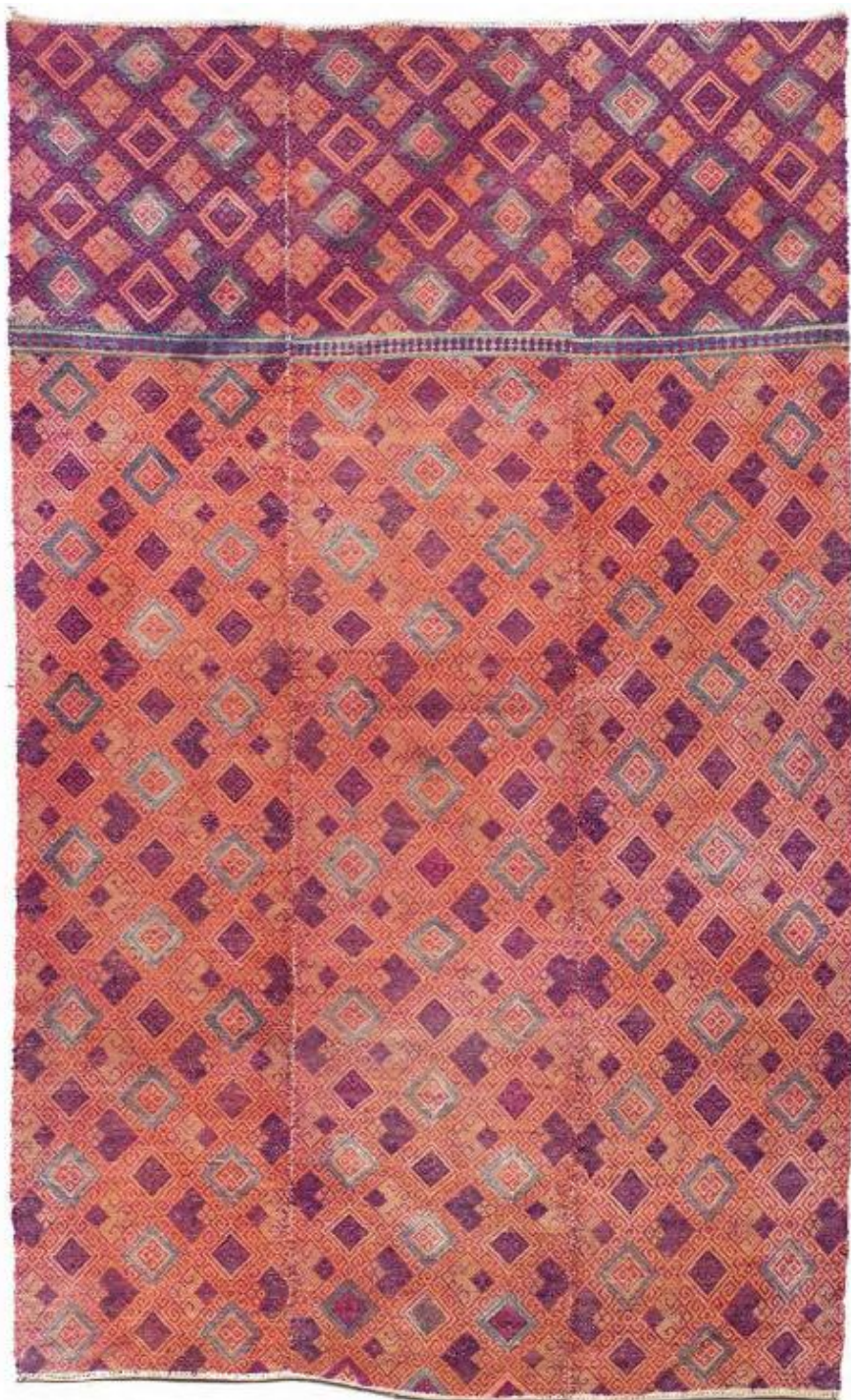


Fig. 1 Wedding bedcover, 149 cm × 92 cm, silk and cotton, mid-twentieth century. He Haiyan collection.

5.22 Zhuang weaving in Jingxi

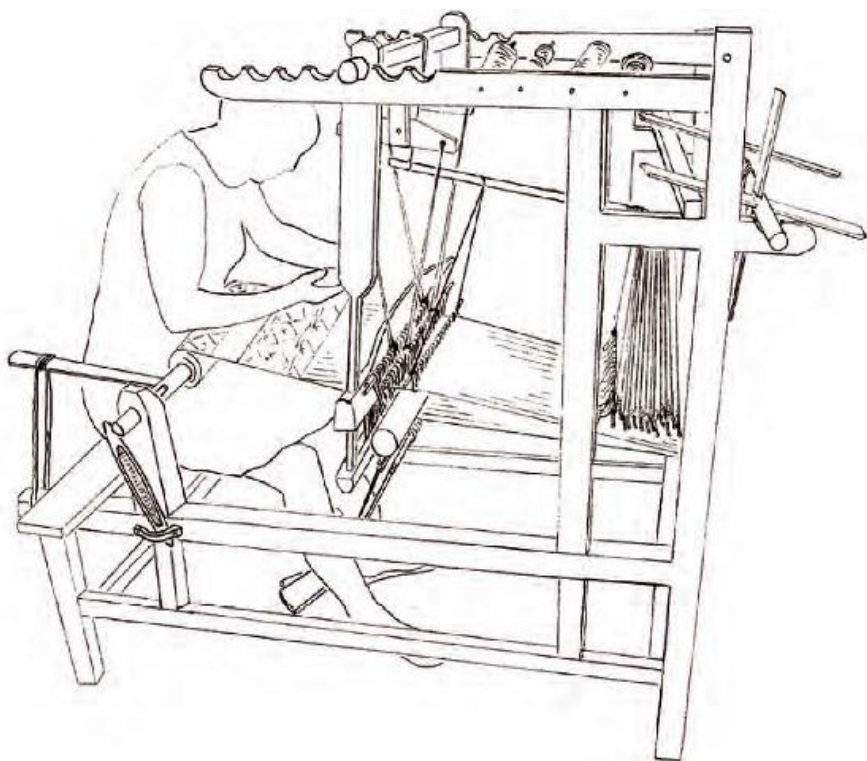


Fig. 2 A Jingxi weaver at her loom.

Jingxi county, Northwest Guangxi province. 广西省，靖西县.
Surveyed in August and October 2012.

As in Binyang, we found that in Jingxi traditional brocade weaving has disappeared from most of the villages in the countryside, but a state sponsored workshop equipped with 20 looms was established in 1956 and is still active, producing official ‘gifts’ and decorative textiles for the tourist shops.

The original looms collected in the 1950s have been replaced with new looms constructed using the same traditional design, but made of hardwood imported from Vietnam.

As each pattern rods set corresponds to one specific pattern and is independent of the loom, the workshop has collected dozens of pattern sets over the years. This collection constitutes an important

archive of traditional Zhuang motifs.

The loom

The Zhuang in Jingxi are one of the few groups of weavers not using a back-tension loom to weave brocades, instead using a loom with the cloth beam fixed in the frame. The loom has a pair of bidirectional heddles for tabby weave, which are raised alternately by cords attached to treadles. The heddles are linked by a rocker attached to a cantilever, so that when one is pulled down, the other one is pulled up and vice versa.

The loom has a unique pattern system: a set of pattern heddles made of bamboo rods, each one corresponding to one patterning weft insertion, hangs in a row from a longitudinal stick suspended in the loom structure. According to the workshop's director, Ms Li, this system is an exact reproduction of the traditional mechanism used in the past by Zhuang people of that area, and there have been no modern technical improvements. The number of pattern heddles varies according to the design.



Fig. 3 Weaving brocade at the Jingxi government workshop.



Fig. 4 The patterning system.

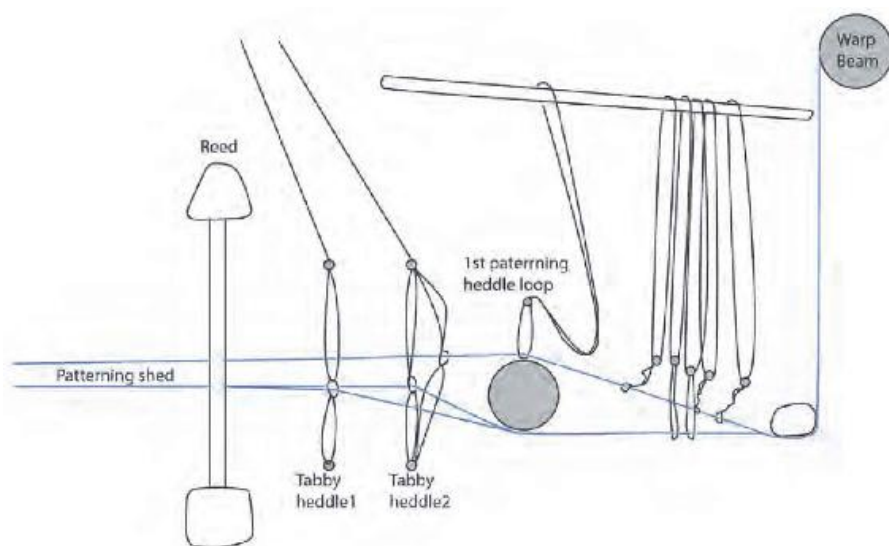


Fig. 5 Jingxi loom mechanism.

Loom characteristics

Total number of warps: 682. This includes 6 pairs and 17 singles on the left; 7 pairs and 17 singles on the right, for the selvages, so that only 636 warps are decorated with supplementary wefts.

Number of warps per reed space: 2
Brocade width: 33 cm
Wefts are beaten-in with the reed



Fig. 6 Silk yarns used for the discontinuous supplementary wefts are pulled by hand from bobbins suspended at the top of the loom.



Fig. 7 Inserting discontinuous supplementary wefts by hand in the patterning shed opened

by the tube.



Fig. 8 A tube has been inserted to open a shed under the selected patterning heddle.

On the loom that we examined there were 28 heddles, however this number can sometimes go up to 40 or 50. Patterns units are always geometric shapes with reflection symmetry, with the axis of symmetry along the weft direction; the two halves of the symmetric pattern unit are woven successively. Heddles are moved from back to front for one half of the symmetric pattern unit and then the direction is reversed for the other half.

Tabby ground wefts are inserted with a shuttle, discontinuous supplementary wefts are inserted by hand. A heavy reed-beater hangs at the front of the loom: it is swung back and forth in order to beat-in the wefts.

Warps and ground wefts are made of black commercial cotton yarn, supplementary wefts are synthetic-dyed commercial silk threads.

Weaving technique

The reverse side of the brocade faces up while it is on the loom.

The five pattern heddles at the back of the group are only used to weave a narrow band of lozenges, decorating the beginning and the end of the woven panels. As with other patterns, they are used twice each time (front to back then back to front) to create the symmetrical motifs.

The weaving process described here applies to a half pattern, woven with pattern heddles used in sequence from the back to the front of the loom.

The weaver moves the first pattern heddle towards her and introduces a large bamboo tube under the leashes, raising an upper warps layer and opening the patterning shed. The bamboo tube is pulled against the reed and the discontinuous supplementary wefts are inserted in the patterning shed.

When all the discontinuous supplementary wefts have been inserted, one of the treadles is pushed down to open the tabby weave shed, and a ground weft is inserted with a shuttle. During the ground weft insertion, the bamboo tube stays in place under the pattern heddle, ready for the insertion of a second row of discontinuous supplementary wefts going through the same pattern shed as the previous one. Our analysis of an older fragment showed a variation on this structure with only one row of supplementary weft per pattern shed.

Glossary of Terms

Loom: *an gei tong*

Warp (same word as weft): *mai*

Brocade: *fa*

Shuttle: *an tao*

Warp beam: *gouk nap*

Cloth beam: *tiko lan*

Reed: *an fi*

Patterning rods system: *kao wa*

Structural analysis

Supplementary weft compound tabby used for a wedding bedcover panel, mid twentieth century. Panel is 36.5 cm wide (33cm on another loom). Thread count: 17 warps, 12 wefts (6 tabby ground, 6 discontinuous supplementary wefts).

Warp: white cotton, 2-ply, S-spun.

Ground tabby weft: white cotton, single-ply, S-spun.

Discontinuous supplementary weft: silk floss in pinks and purples.



Fig. 9 Detail analysed in Fig. 10.

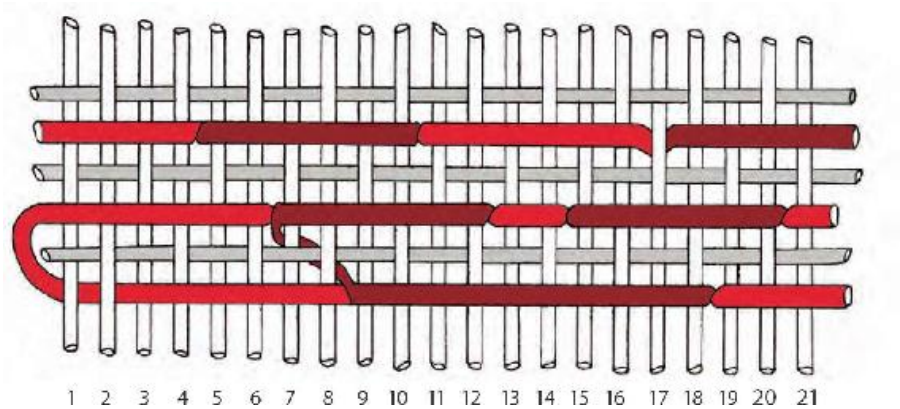


Fig. 10 Wedding bedcover weave structure.



Fig. 11 Reverse side of a wedding bedcover panel.



Fig. 12 Panel from a wedding bedcover, 137 cm × 30 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection.



Fig. 13 Panel from a wedding bedcover, 127 cm × 29 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection.



Fig. 14 Details of the front and reverse sides of Figs. 12 and 13.

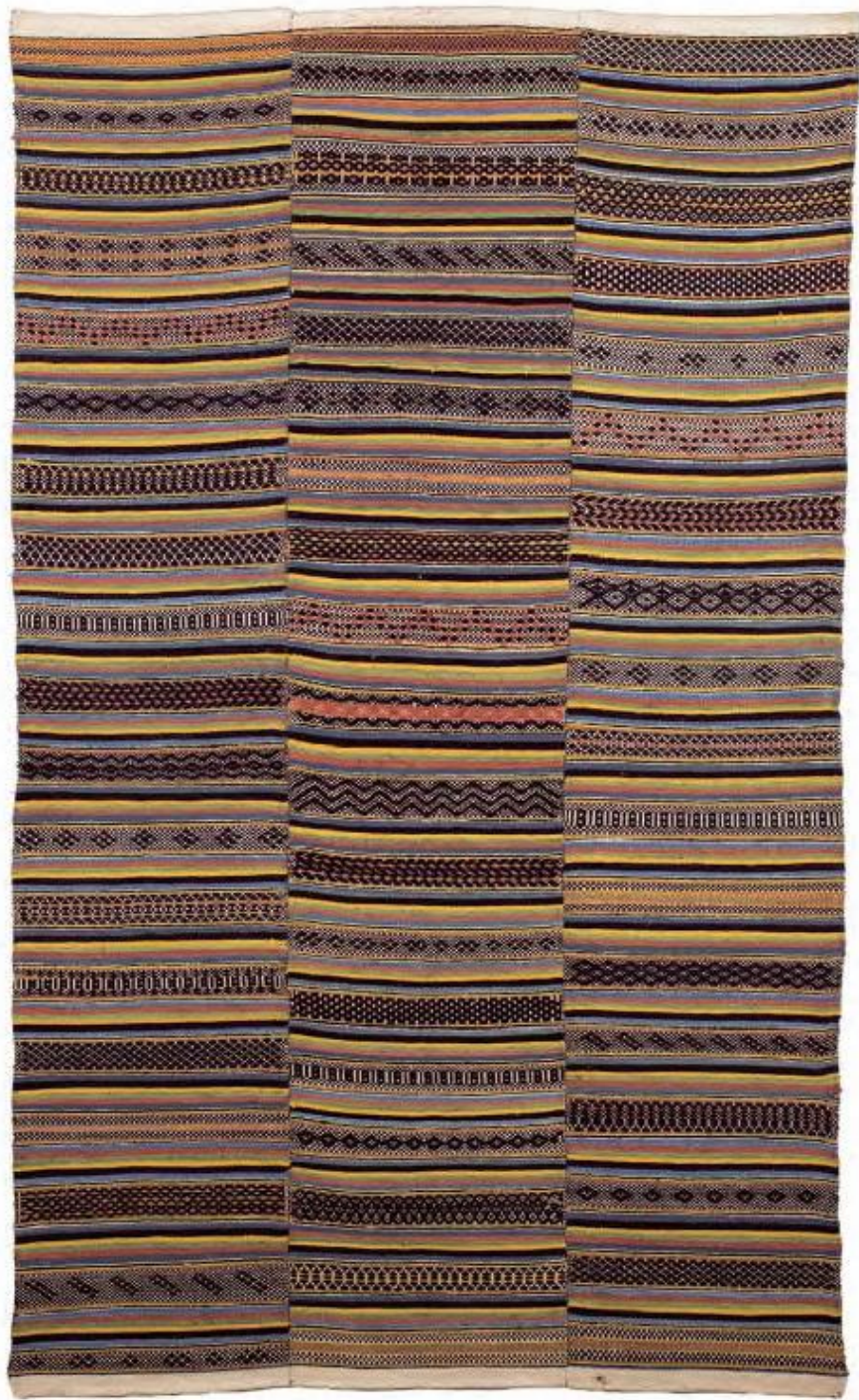


Fig. 1 Wedding bedcover, 150 cm × 92 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection.

5.23 Zhuang weaving in Napo

Tunli hamlet, Xiangjinglonghua village, Napo county, Northwest Guangxi province. 广西省, 那坡县, 麻进龙华村, 吞力屯. Surveys conducted in August and November 2012.

Zhuang people are called *Heiyi Zhuang* ('Black costumed Zhuang') by the Han in this area.

Though located in a very remote and poor area of Northwest Guangxi, this village has been chosen for transformation into a weekend resort, mostly frequented by local townsfolk; a good road has been built and a barrier manned by an attendant stops visitors in order to charge them an entry fee of 60 RMB per person.

The village has kept its traditional form, while adding the usual facilities found in numerous similar 'ethnic resorts' that have flourished in Southwest China in the past decade. The centre of the village has been paved with stones, and local women dressed in traditional costumes perform dances there to the sound of a drum for the benefit of visitors. Around the edge there is a café, a tourist shop and small stalls where brocade panels are offered for sale.

Two weavers were interviewed for this survey, Li Meiyan, 45 and Yang Guijing, 65.

Most houses still have at least one active loom, which is partly due to the fact that the panels (usually not full bedcovers) sell well in this tourist village and that local officials like to offer them as gifts representing the local ethnic culture when on official visits to other parts of China or overseas. However, according to Li, some young local Zhuang brides, many of whom do not know how to weave, also order wedding bedcovers for their trousseau.



Fig. 2 Tunli hamlet.



Fig. 3 Yang displays a wedding bedcover panel that she wove recently.

Yang said that in the past all warps and weft yarns were made of locally grown, handspun cotton, of which she still keeps a few skeins (Fig. 4). She told us that in the past most bedcovers were woven with yarns dyed with only two types of natural pigment. Two shades of blue, one pale and one dark, were obtained using indigo. She also mentioned that a brownish-red mineral pigment used to be used that was made from a local red stone, but that this technique has been abandoned for decades. She said that the red stone was ground into a powder, which was boiled in a mixture of water and *baijiu* (rice wine). Today the warps are still made of locally grown and spun white cotton when available, while the wefts are commercial silk yarns dyed with various synthetic dyes.

Li said that she started to learn weaving bedcovers from her mother when she was ‘five years old’. There were no fixed numbers of bedcovers required for the wedding trousseau. Despite the ‘touristification’ of this village, and the changes in yarns and dyes, Li told us that the loom weaving techniques have not changed in recent years.



Fig. 4 Yang Guijin with home grown, hand-spun cotton skeins.

The loom

The loom bears a striking resemblance to two historical Han Chinese looms (Fig. 14); including one illustrated in the *Tiangong Kaiwu* (first published in 1637). Similar looms were also widely used until recent

times by Han Chinese weavers, particularly in rural provinces.

Weaving technique

The reverse of the brocade faces up while it is on the loom. Weaving proceeds by depressing and releasing the treadle, as described above, opening the counter shed and natural shed respectively. Wefts are inserted with a beater-shuttle or with boat-shaped shuttles.

The structure of the Napo Zhuang wedding bedcover panels is the simplest that we have found amongst the various weaves of Southwest China. It is basically a tabby weave except for the fact that warps are always picked up in pairs, which produces a characteristic ribbed effect. The bedcovers are made of two or three panels; the weavers we interviewed said that one panel takes about five days to produce.

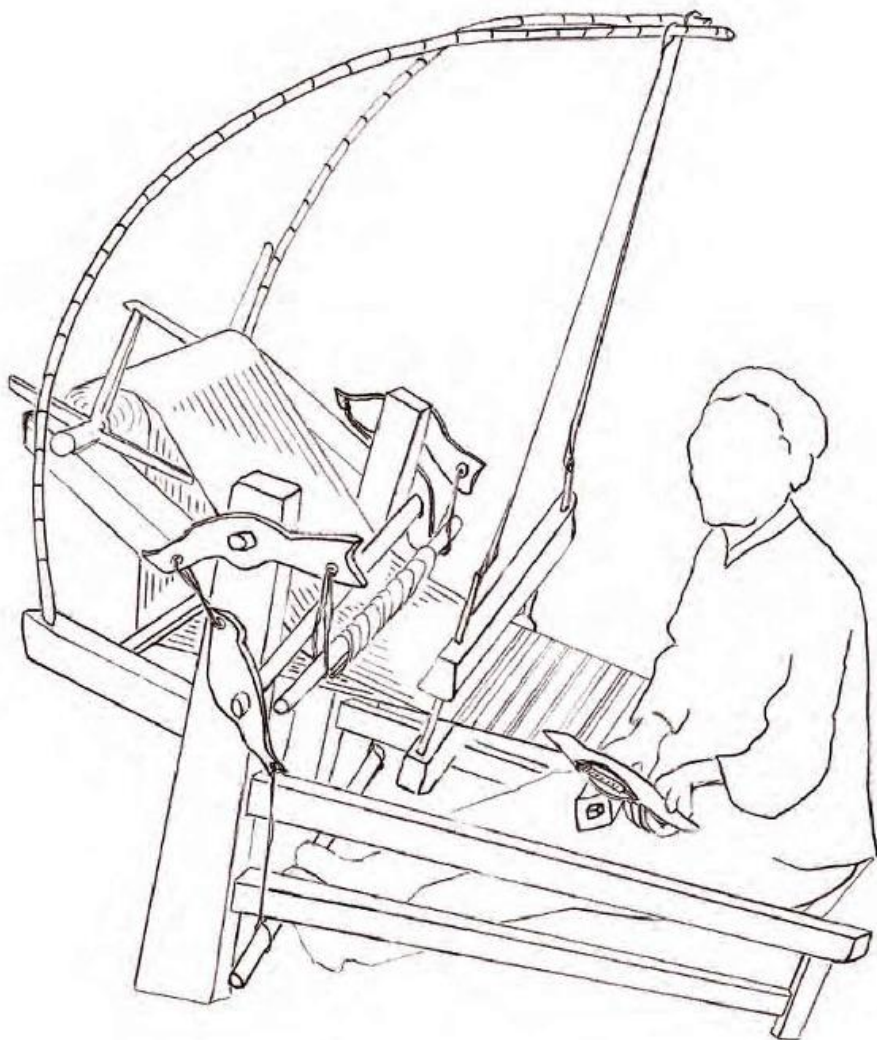


Fig. 5 Yang at her loom.



Fig. 6 The 'parakeet' rocker mechanism.



Fig. 7 The rocker pulls up the heddle while pushing down the warp-depression bar.

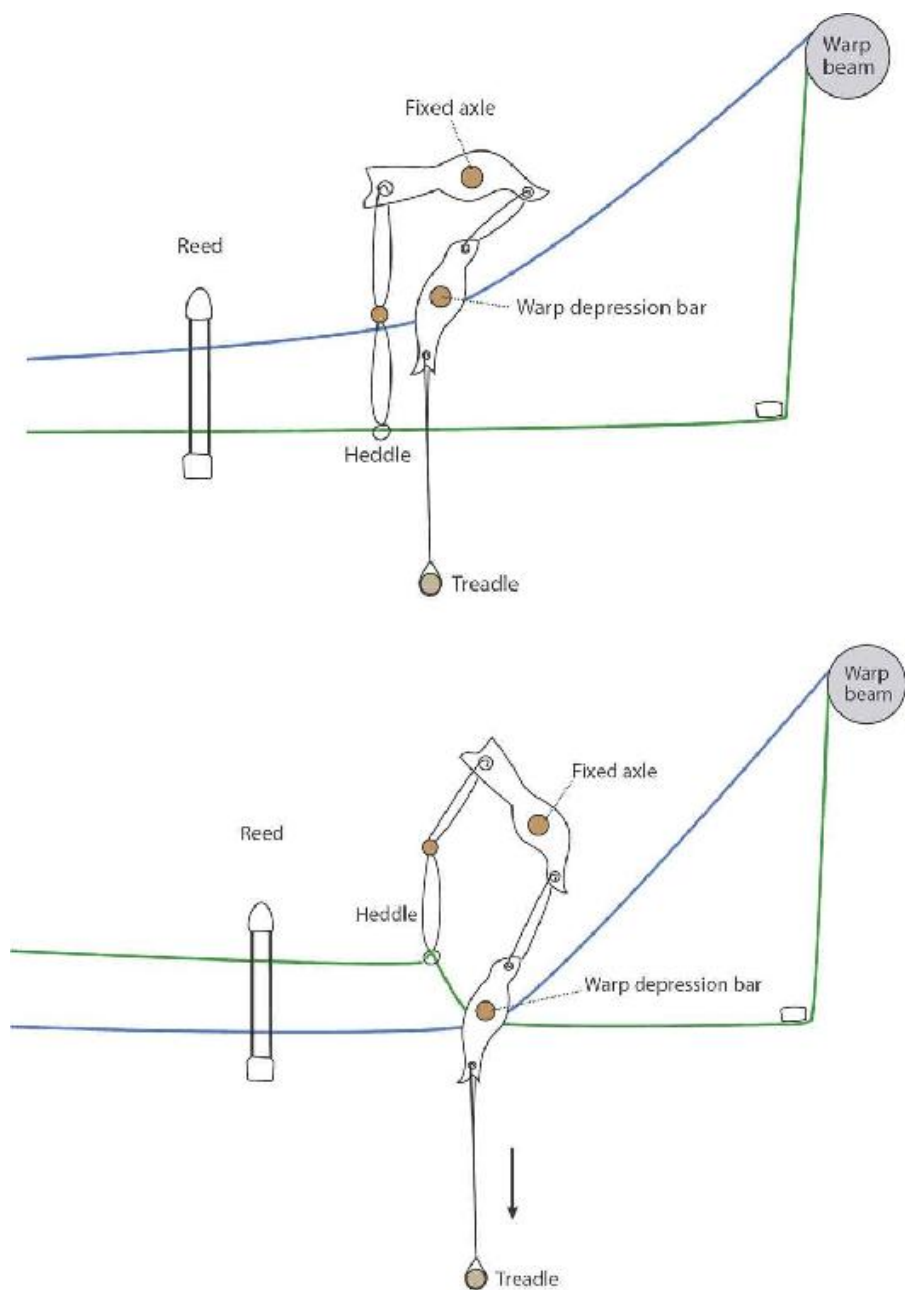


Fig. 8 Loom mechanism, illustrating the action of the treadle and rocker bars, which both lift the heddle and pull down a warp-depression bar at the same time. (Above) natural tabby shed. (Below) tabby countershed.

Loom characteristics

Total number of warps: 184

Number of warps per reed space: 2

Number of heddles: 92

Fabric width: 36 cm

Wefts are beaten-in with the reed and a beater-shuttle

Glossary of Terms

Loom: *an to*

To weave: *dam to*

Warp or weft (same word): *pai*

Warp beam: *ana*

Reed: *pu bak fam*

Cloth beam: *mai bam*

Fabric: *wei jian*

Heddle/shaft: *kao tok*

Shuttle: *an pao*

Back strap: *dam nang*

Structural analysis

Panel used for wedding bedcover, mid twentieth century.

Panel is 35 cm wide. Thread count: 5 warps, 20 wefts per cm.

Warps: light indigo blue cotton, 2-ply, S-spun.

Wefts: cotton in black (dark indigo), white, brick-red (mineral pigment), single-ply, S-spun.



Fig. 9 Structure detail of Fig. 12.



Fig. 10 Detail analysed in Fig. 11.

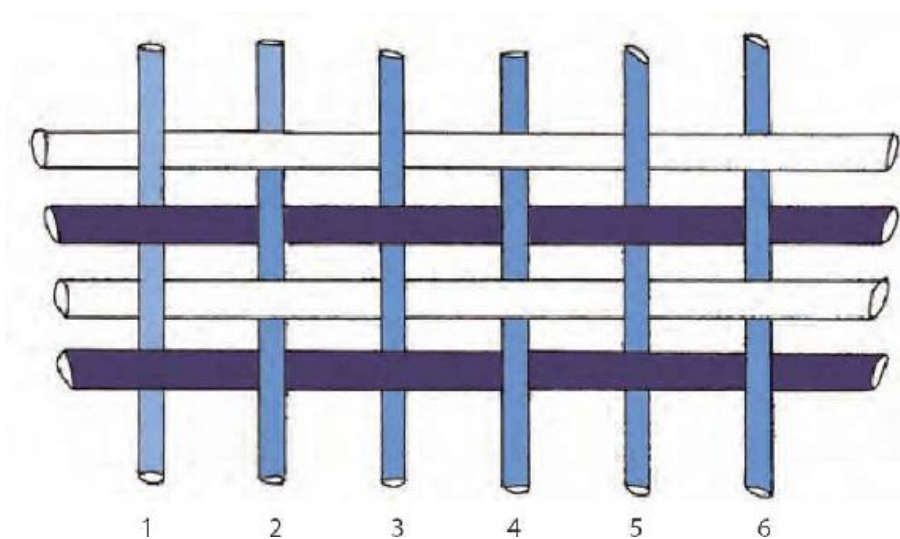


Fig. 11 Weave structure of a wedding bedcover.

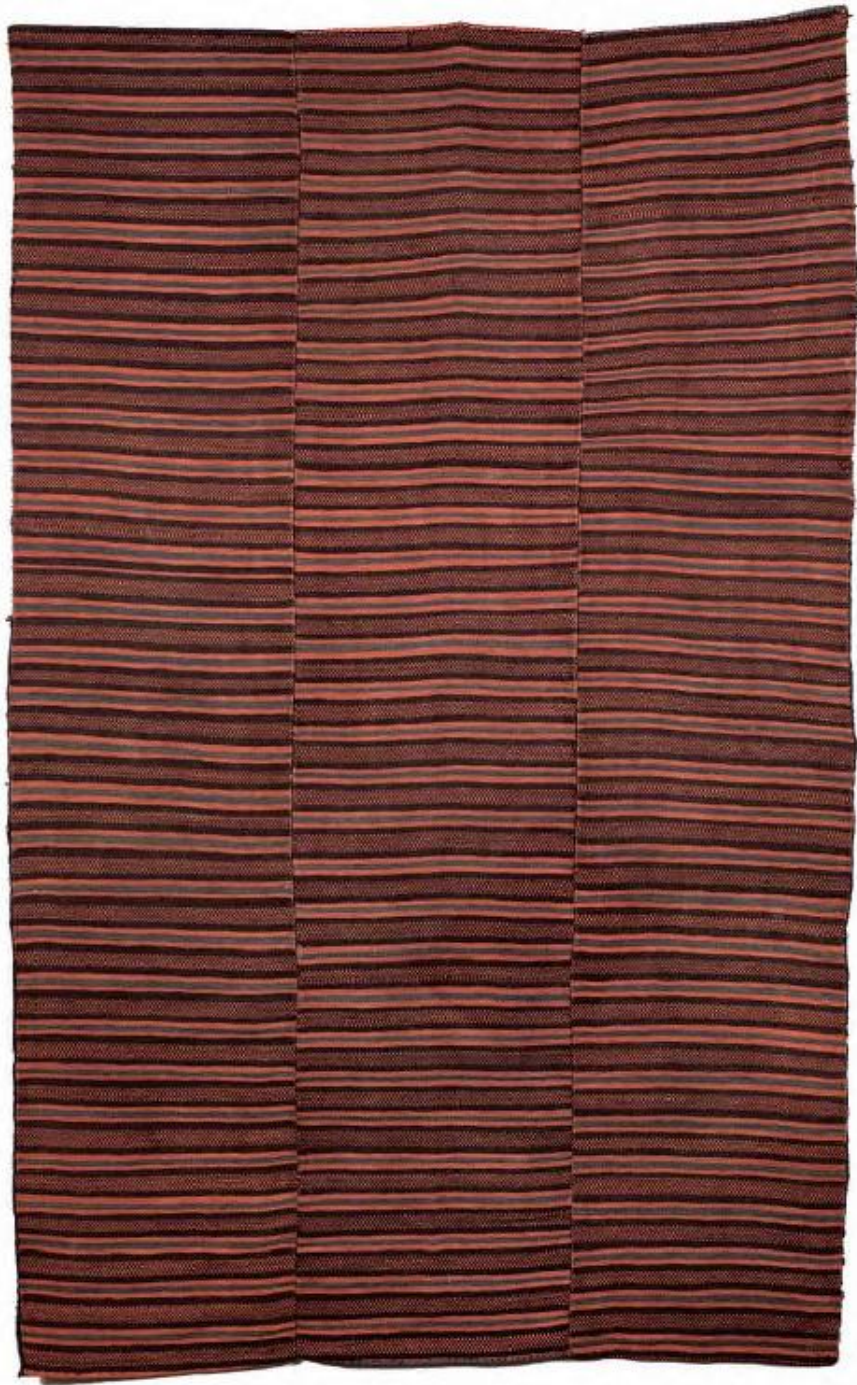


Fig. 12 Wedding bedcover, 173 cm × 109 cm, cotton, natural dyes, twentieth century. This textile is a rare example of the use of a mineral pigment (for the red colour) in an ethnographically recent weaving from China. He Haiyan collection.



Fig. 13 Wedding bedcover, 139 cm × 87 cm, cotton, mid twentieth century. He Haiyan collection.

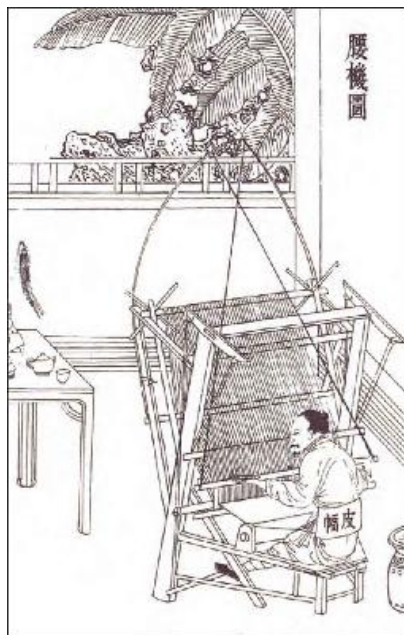


Fig. 14 Two historical depictions of looms with a similar heddle raising mechanism and suspended reed to the Napo loom. (Left) Woodblock illustration from the *Tiangong Kaiwu*; 1637. (Right) Watercolour album leaf from 'The Story of Ramie from Seed to Finished Garment'. 1820. Image courtesy of the Chemical Heritage Foundation.



Fig. 15 Detail of the bedcover in Fig. 1.



Fig. 1 (Left) Zhuang woman's headscarf, Funing county in Southeast Yunnan, 186 cm × 34 cm, cotton, nineteenth century. Private collection.
(Right) details from the headscarf.

5.24 Zhuang weaving in Funing



Figs. 2 (Left) detail of a woman's headscarf in Fig. 3, front and reverse sides. (Right) details of the front and reverse side of another headscarf, with a stylized dragon design and geometric border. Cotton, indigo dye, nineteenth century. He Haiyan collection.

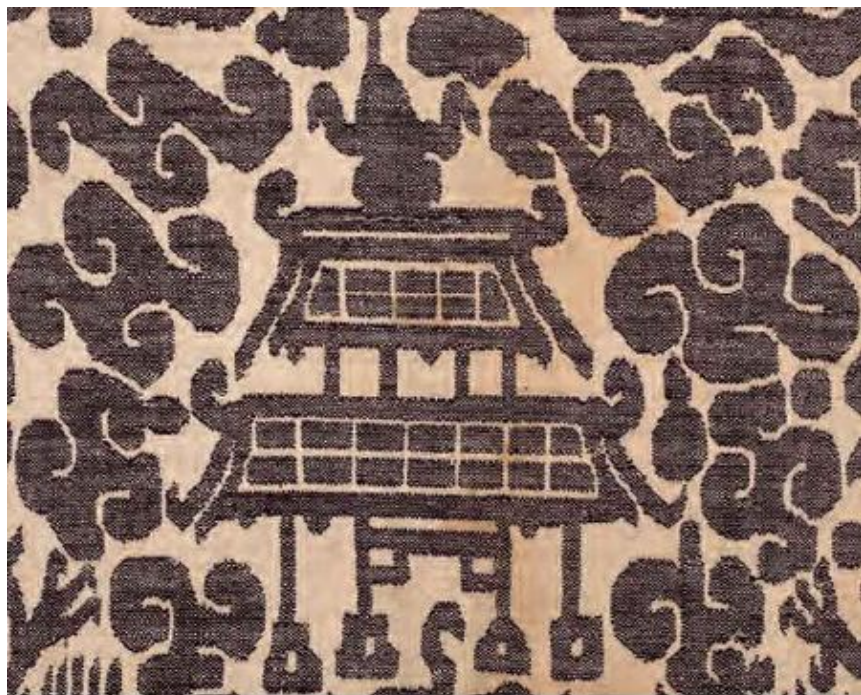
Funing county, Southeast Yunnan. 云南省, 富宁县.

We were not able to find any looms or weaving in this area: interviews with local people and examination of surviving weavings suggest that this brocade weaving had already been abandoned by the beginning of the twentieth century.

The only weavings that survive from this area (that we are aware of) are some women's headscarves with striking and complex designs. One of these headscarves has a rare example of the use of a weft wrapping technique (Fig. 4).



Fig. 3 Woman's headscarf, 182 cm × 33 cm, cotton, indigo dye, nineteenth century. He Haiyan collection.



Details of the front and reverse sides.

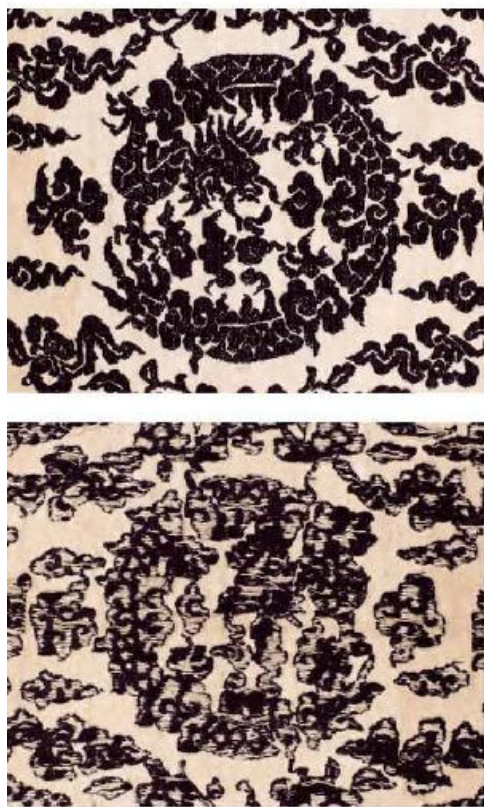


Fig. 4 (Left, with details of the front and reverse sides above) Zhuang woman's headscarf, 152 cm × 36 cm, cotton, natural indigo dye, nineteenth century. This exceptional headscarf is woven using a weft wrapping technique, the only example of this technique that we have found in Southwest China. The dark indigo dyed supplementary wefts are wrapped several times in the same row around the same group of warps, producing a striking 'embossed' effect. Weft wrapping is used in other parts of Asia, for example in the Indonesian archipelago. Whether this is related to those techniques or whether it was devised independently by Zhuang weavers is unknown. He Haiyan collection.

5.25 Zhuang weaving in Wenshan

Wenshan county, Southeast Yunnan province. 云南省, 文山县.

We were not able to find any brocade looms in this area during our research. Interviews and fragments collected in this area tend to suggest that this technique was abandoned at the beginning of the twentieth century or perhaps earlier.

The only extant brocades from this area that we are aware of are a group of heirloom women's headscarves that seem to have been woven by a Zhuang group locally known as 'Longzu'. Nowadays, the wedding trousseau is exclusively composed of silver jewellery and headscarves are bought ready-made in the local market.





Fig. 1 (Top) wedding headscarves from Wenshan prefecture, 115 cm × 33 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection. (Above) details from the headscarves.



Fig. 2 Detail of supplementary weft patterning1.



Fig. 3 Detail of black on black patterning.

Structural analysis

Supplementary weft compound tabby used for a woman ceremonial headscarf, late nineteenth century. The weaving is 35.5 cm wide. Thread count: 30 wefts (ground + supplementary), 16 warps per cm.

Warp: black (dark indigo) cotton, single-ply, S-spun.

Wefts Type 1: floss silk in salmon pink, blue and green, single-ply.

Wefts Type 2: dark indigo cotton, 3-ply, untwisted.

Wefts Type 3: yellow and red silk, 2-ply, Z-spun.

Wefts Type 4: yellow and red silk, 2-ply (2 threads running parallel and separate, made of 2 strands each), Z-spun.

Wefts Type 5: black (dark indigo) cotton, single-ply, Z-spun.

Two sections are analysed.

Fig. 6 Section1: Supplementary weft pattern2 (patterning wefts Type4.; ground wefts type5).

Fig. 8 Section2:

Black on black pattern (wefts Type 1 & 2; note that exceptionally the silk weft is used here as ground weft, the cotton weft as supplementary weft)

Multicolour tabby (wefts Type1)

Supplementary weft pattern1 (patterning wefts Type 3; no

ground wefts)



Fig. 4 Details of the front and reverse sides of one of the headscarves in Fig. 1.



Fig. 5 Detail analysed in Fig. 6.

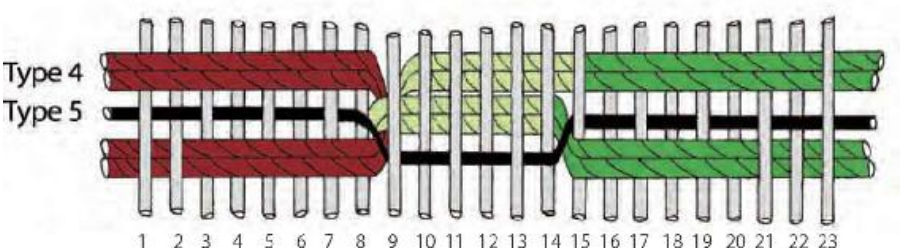


Fig. 6 Structural diagram of Section 1.



Fig. 7 Detail analysed in Fig. 8.

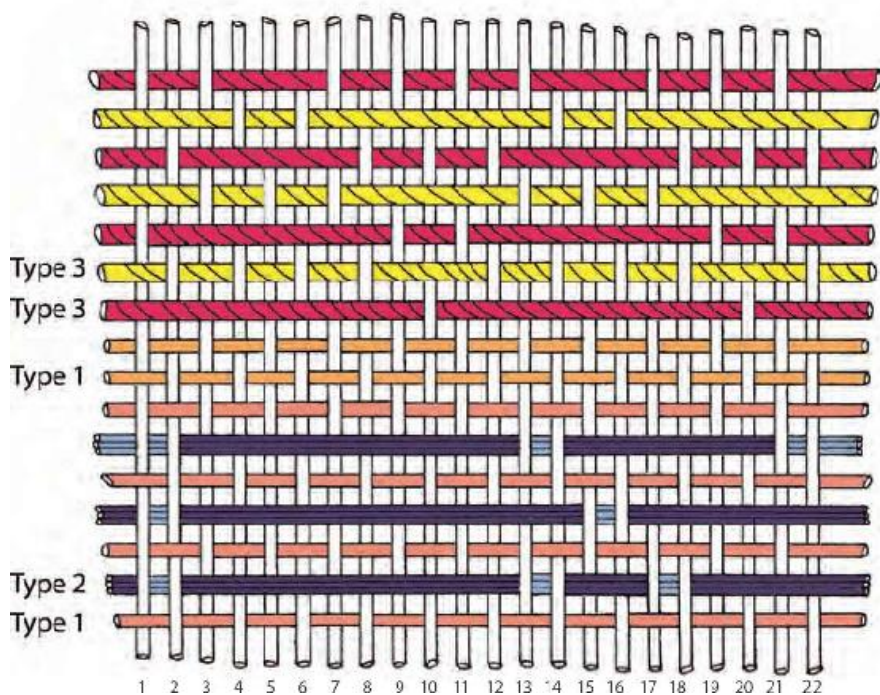


Fig. 8 Structural diagram of Section 2.



Fig. 9 Zhuang woman's headscarf, 156 cm × 40 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection.



Fig. 10 Zhuang woman's headscarf, 216 cm × 29 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection. (Above) details from the front and reverse sides of the headscarf in Fig. 11.





Fig. 11 Zhuang woman's headscarf, 215 cm × 29.5 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection.



Fig. 1 Wedding bedcover from the Qiubei 丘北 area of Yunnan, 162 cm × 115 cm. The central brocaded panel is made of cotton coloured with natural materials. The borders and back are said to be woven with a locally produced fibre called huocao 火草. Nineteenth century, He Haiyan collection.

5.26 Zhuang weaving in Qiubei, Yunnan province



Detail from the brocaded part of the bedcover.

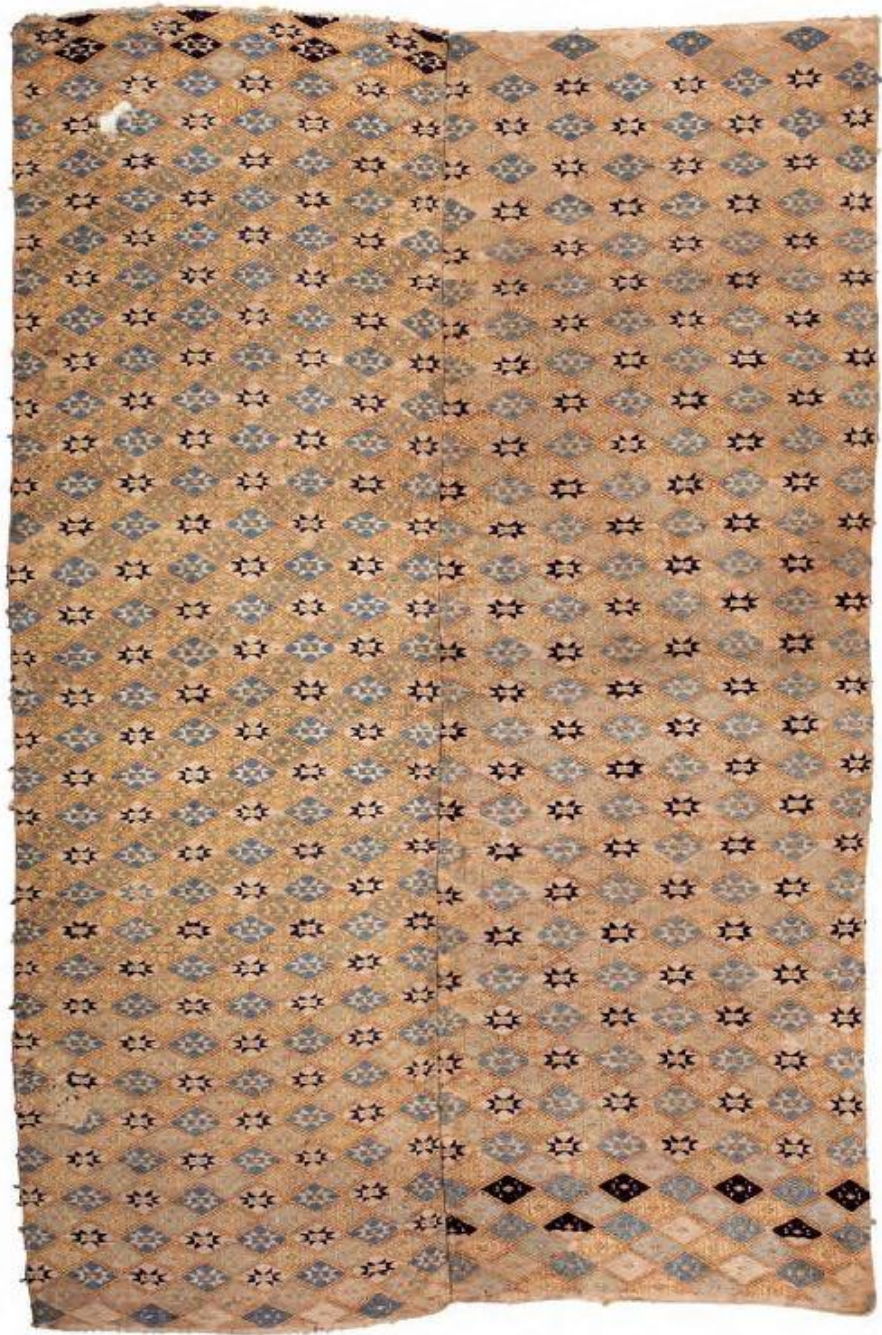


Fig. 1 Wedding bedcover from the Baise area of Guangxi. Dimensions 130 cm × 85 cm, silk and cotton, natural dyes, nineteenth century. He Haiyan collection.

5.27 Zhuang weaving in Baise, Guangxi province



Details of the front and reverse sides.

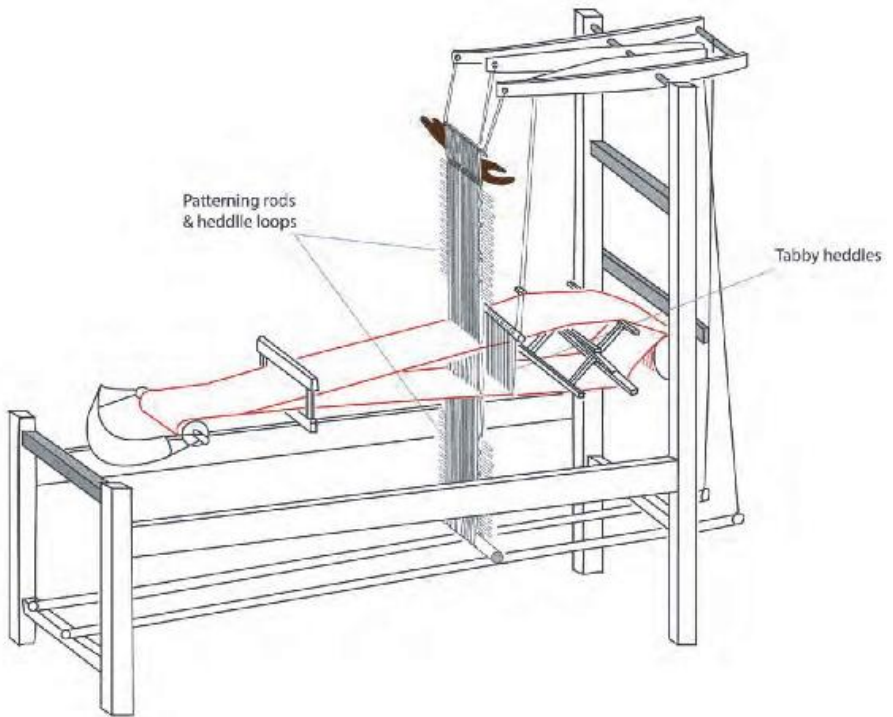


Fig. 1 Dai 'Venetian Blind' brocade loom of West Yunnan. Based on a working loom kept at the China National Silk Museum in Hangzhou.

5.28 The Dai

The Dai (Tai) people in China mainly live in border regions in Yunnan province. The designation 'Dai' includes groups with diverse weaving traditions, who are related to Tai peoples in neighbouring regions of Northern Vietnam, Northern Myanmar, Northern Thailand and Laos.¹ We have not attempted to cover the weaving traditions of these groups in the same level of detail as Daic groups elsewhere in the Southwest, but we will make a few remarks about their looms and techniques here, and we give examples of some of their most prominent textiles.

'Venetian Blind' pattern heddles

As with Daic people in other parts of the Southwest, the Dai use looms with motifs recorded on bamboo rods in pattern heddle. Rather than being circular, Tai heddles are mostly flat, and are sometimes called 'Venetian Blind' heddles. The heddle is in two symmetrical halves, above and below the warp (Fig. 1).

To operate this heddle, the weaver leans forward and grasps the lowest pattern rod from the set above the warp, and pulls it towards herself. By doing this she separates the heddle leashes into a front set, around the rod, which raise the warps that open a pattern shed, and a back (inactive) set. The mirror-image set of leashes below the warp, which are linked to the upper set, are opened at the same time. She can now add a piece of continuous supplementary weft in the pattern shed she has opened. With the pattern shed still open, she removes the rod from the upper set and places it in the opening in the lower set. She continues in this way until all the rods in the top set have been used and replaced in the lower set, by which time half of the pattern repeat has been woven. In most cases she will reverse the action at this point, moving rods from bottom to top. In this way she weaves two symmetrical halves of a design.

Comparing with the circular heddles used by other Daic groups, the basic similarities of these systems become clear. The heddle is 'opened out' rather than circular, but the way it is used is the same. Using a set of rods and then reversing direction is the same, in principle, as using a set of pattern rods on a drum, then reversing the direction of rotation and using them in reverse order, producing a symmetrical

design.

Like Daic peoples elsewhere in the Southwest, the Dai use Complex Pattern Heddles mainly for producing repeating designs in supplementary weft across the entire width of cloth. They may also add localized motifs in discontinuous supplementary weft ‘by hand’, using a hook or pointed bamboo stick to select and lift warps. The most intricate designs are usually produced by this method.

Varieties of looms

There are a number of variations of the ‘Venetian Blind’ loom. In Southwest China the most common form is a back-tensioned loom with the pattern heddle suspended from rocker bars attached to a treadle, the tabby heddle being attached to the other treadle. This is the type illustrated in Fig. 1.

A variation on this loom has the ‘Venetian Blind’ fixed to a box-like loom frame, with the cloth beam also fixed to the frame. Tabby sheds are opened by a pair of bidirectional foot treadles. This variant, which is an advance on the basic type, is the one most commonly found in North Thailand and Laos. With the pattern heddle fixed to a rigid frame (or to the ceiling or an independent support) there is no limit in principle to the number of pattern rods that can be used. Rods are often replaced by cords, to save space (as in the Chinese Drawloom), and some extremely complex patterns can be recorded and re-used with this system. Some large commercial workshops in Thailand use very large looms with patterns saved on ‘webs’ in this manner, worked by a weaver and several assistants. The complexity of these looms rivals that of the Chinese Drawloom.

¹ This is complicated by diverse official and unofficial descriptions and designations used in different countries in the border region which they inhabit, which tend to obscure the underlying ethnolinguistic identities.

5.29 Dai weaving in Yingjiang



Woven bedcovers from Yingjiang in Yunnan province, which is near to Jinghong and the border with Myanmar, constitute a distinctive group in terms of technique and design. They are made using continuous wefts of three colours (there being no distinction between a 'ground' and 'patterning' weft), mostly made of handspun cotton, with silk making an occasional appearance in the wefts. The designs on these blankets consist of a small and highly conservative group of motifs,

repeated across the entire length of each woven panel, with no variation in colour. Bedcovers were usually made with two or three of these panels joined together, with a plain cotton border. The narrow range of motifs and their uniformity in design is typical of the use of pattern heddles to record designs. It is likely that these have undergone very little change over hundreds of years. The motifs on some of these blankets are reminiscent of other kinds of Daic weaving from Southwest China, including Dong weaving from the Bazhai area. Motifs include hooks and bracket shapes that also recall motifs from further afield, including regions as far away as Indonesia and Central Asia. Hooks arranged in rhombus shapes can be found in ikats from Timor and Sulawesi, and in Central Asian rugs. It would be a mistake to say that these similarities represent 'influences' however: weavers in remote parts of Yunnan had no reason to deviate from their traditional repertoire and to copy motifs from distant places. Rather they are indicative of the shared origins of Asian weaving traditions.



Fig. 1 Dai wedding bedcover from the Yingjiang area of eastern Yunnan, 128 cm $\times$ 71 cm, cotton, natural dyes, nineteenth century. He Haiyan collection. (Facing page) details of the front and reverse sides of the bedcover in Fig. 1.

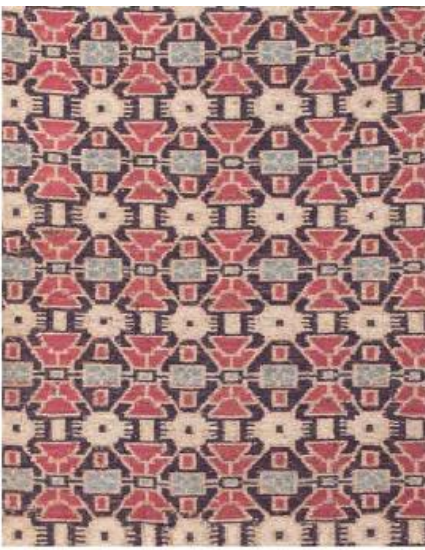


Fig. 2 Details of the motifs of four bedcovers from the Yingjiang area, including details from the panels in Fig. 3.



Fig. 3 Panels from two wedding bedcovers, both 116 cm × 36 cm, cotton, natural dyes, nineteenth century. He Haiyan Collection.

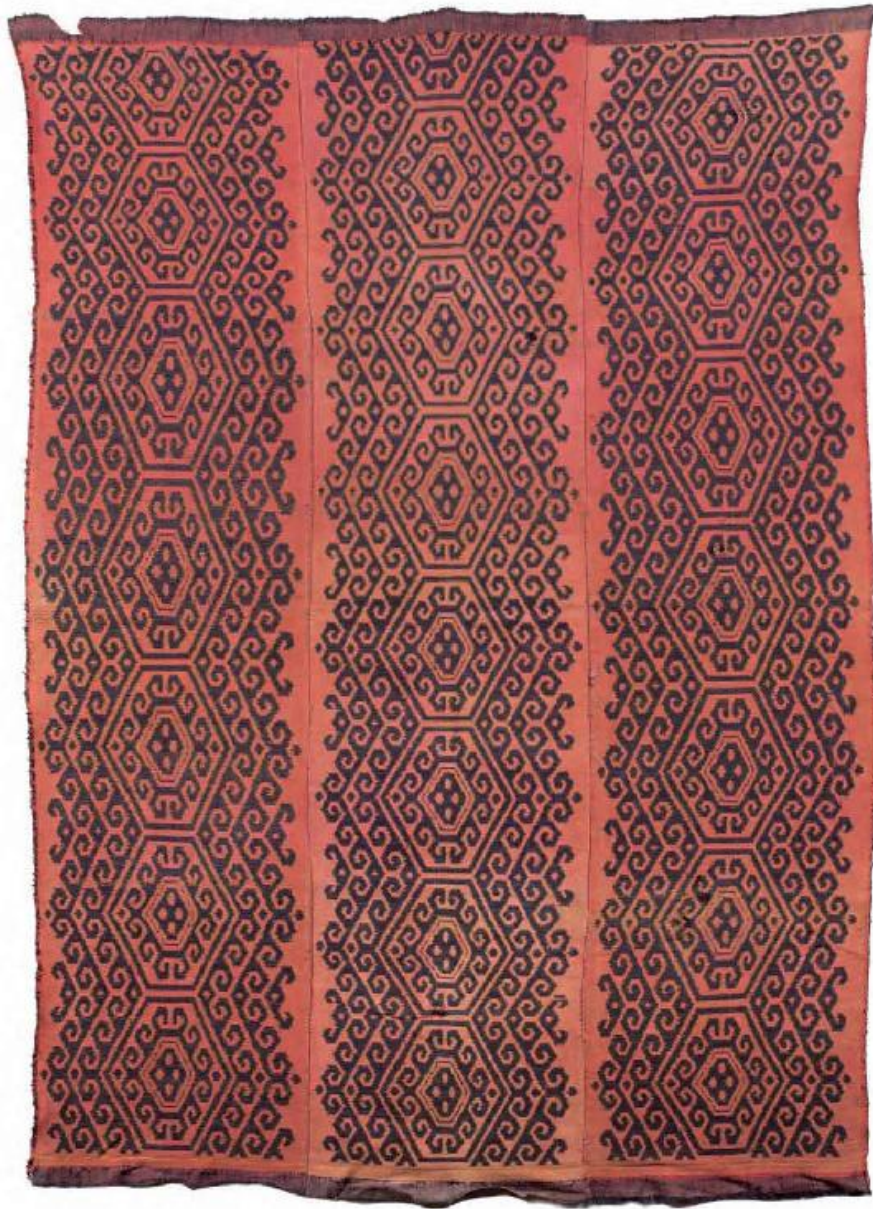


Fig. 4 Wedding bedcover, 123 cm × 87 cm, cotton, circa 1900. He Haiyan collection.



Fig. 5 Detail of the reverse side of Fig. 4.

Structural analysis

Supplementary weft compound tabby used for a wedding bedcover panel, early twentieth century.

Panel is 31 cm wide, pattern repeat 17 cm. Thread count: 14 warps, 14 groups of 6 wefts (2 white, 3 red, 1 blue) per cm. Warps: yellowish white cotton, 2-ply, Z-spun.

Wefts: All wefts are continuous, running selvedge to selvedge.

Weft1: yellowish white cotton, 2-ply, S-spun; one weft is made of a group of 2 threads, parallel, not twisted.

Weft2: dark indigo cotton, single-ply, S-spun.

Weft3: red cotton, single-ply, Z-spun, one weft is made of a

group of 3 threads, parallel, not twisted.

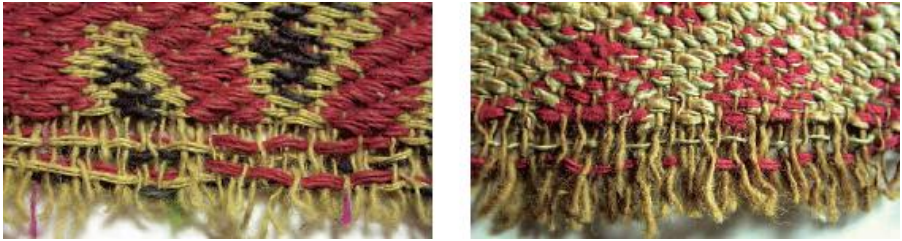


Fig. 6 Details of the front (left) and reverse side (right) of Dai wedding bedcover fragment from the Yingjiang area, analysed in Fig. 7.

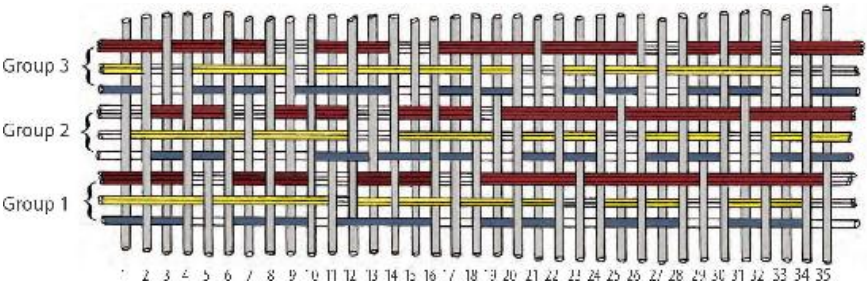


Fig. 7 Weave structure analysis of a Dai wedding bedcover fragment from the Yingjiang area in Fig. 6.

5.30 Dai weaving in South Yunnan

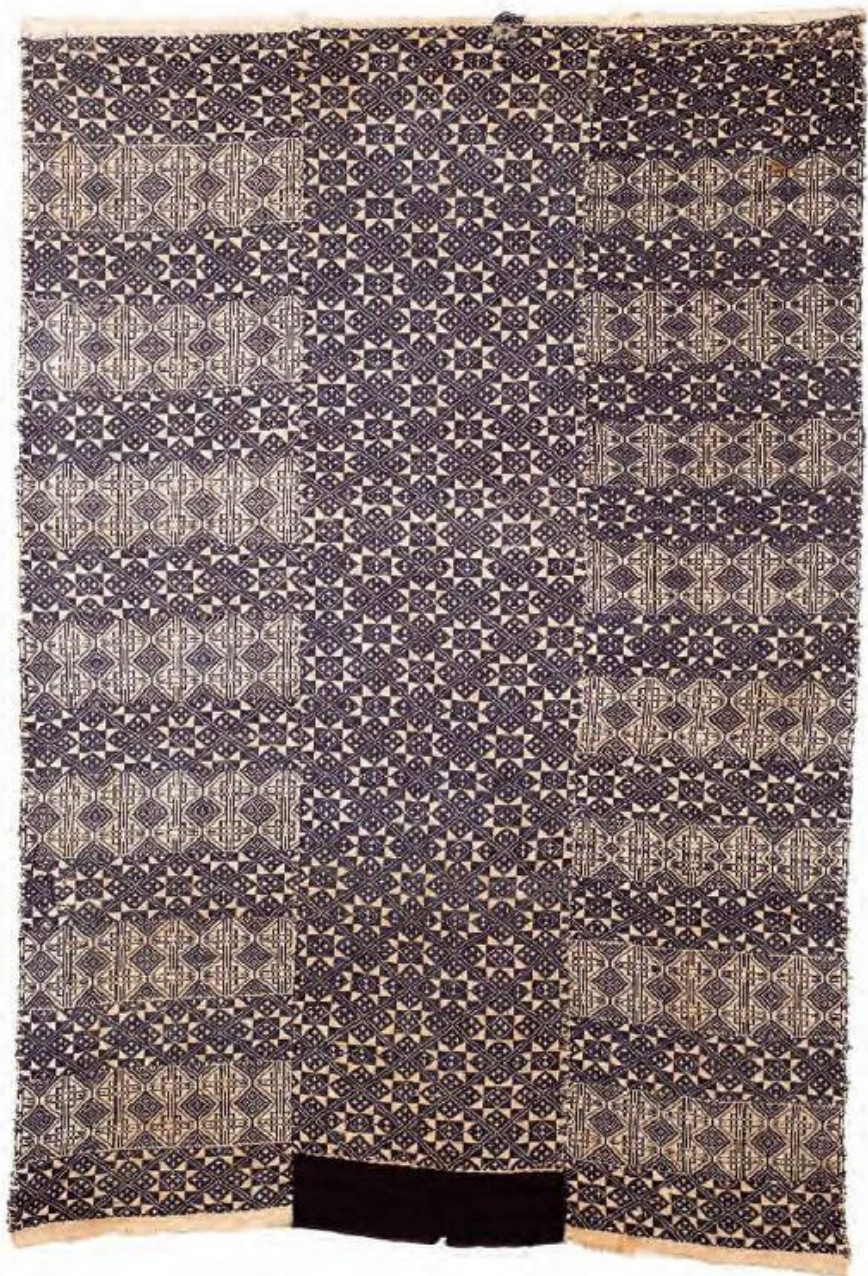


Fig. 1 Dai wedding bedcover, 122 cm × 84 cm, cotton, indigo dye, Yuanjiang 元江, South Yunnan province. He Haiyan collection.

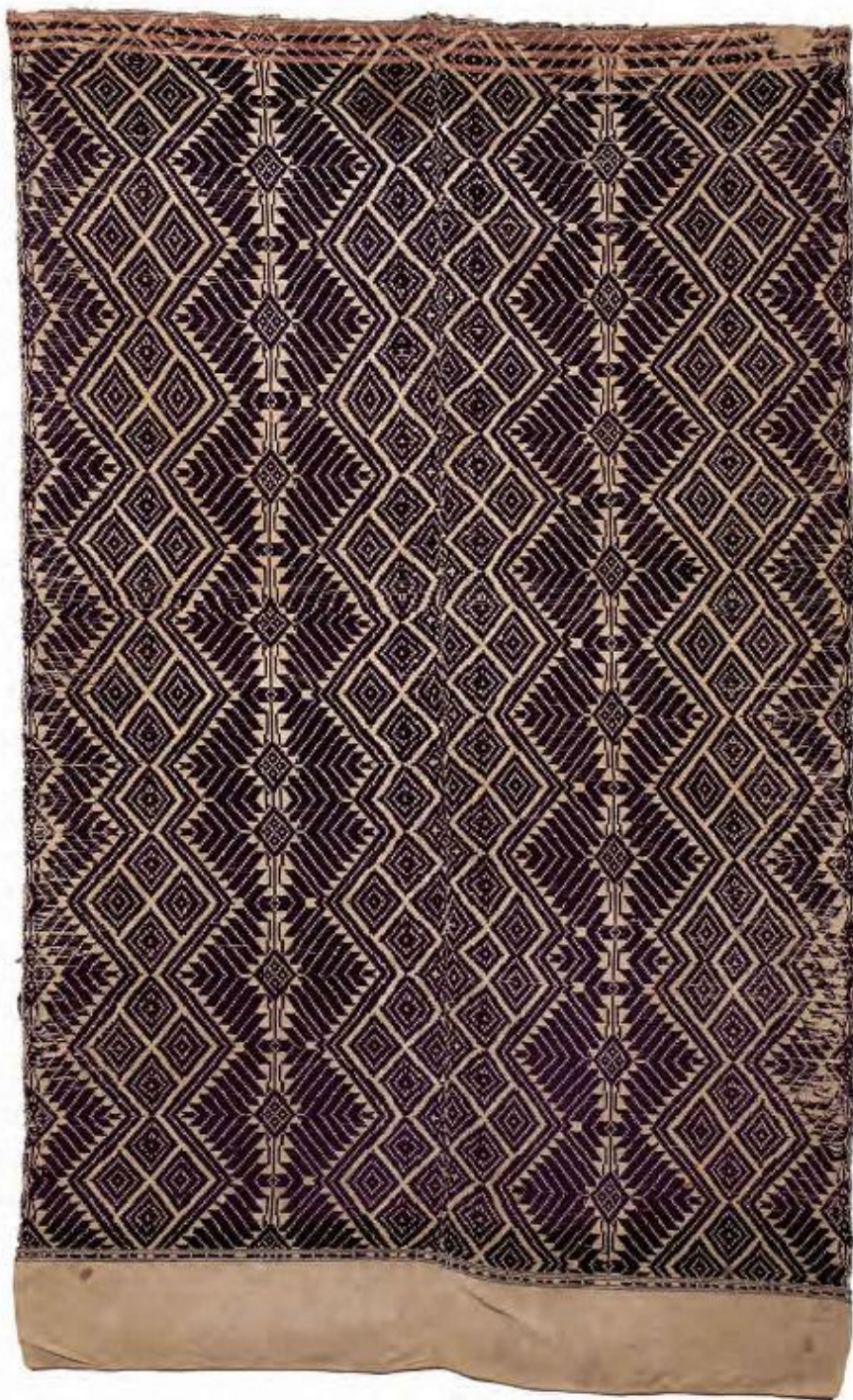


Fig. 2 Dai wedding bedcover, 159 cm × 98 cm, hemp, indigo dye, Yuanjiang 元江, South

Yunnan province. He Haiyan collection.

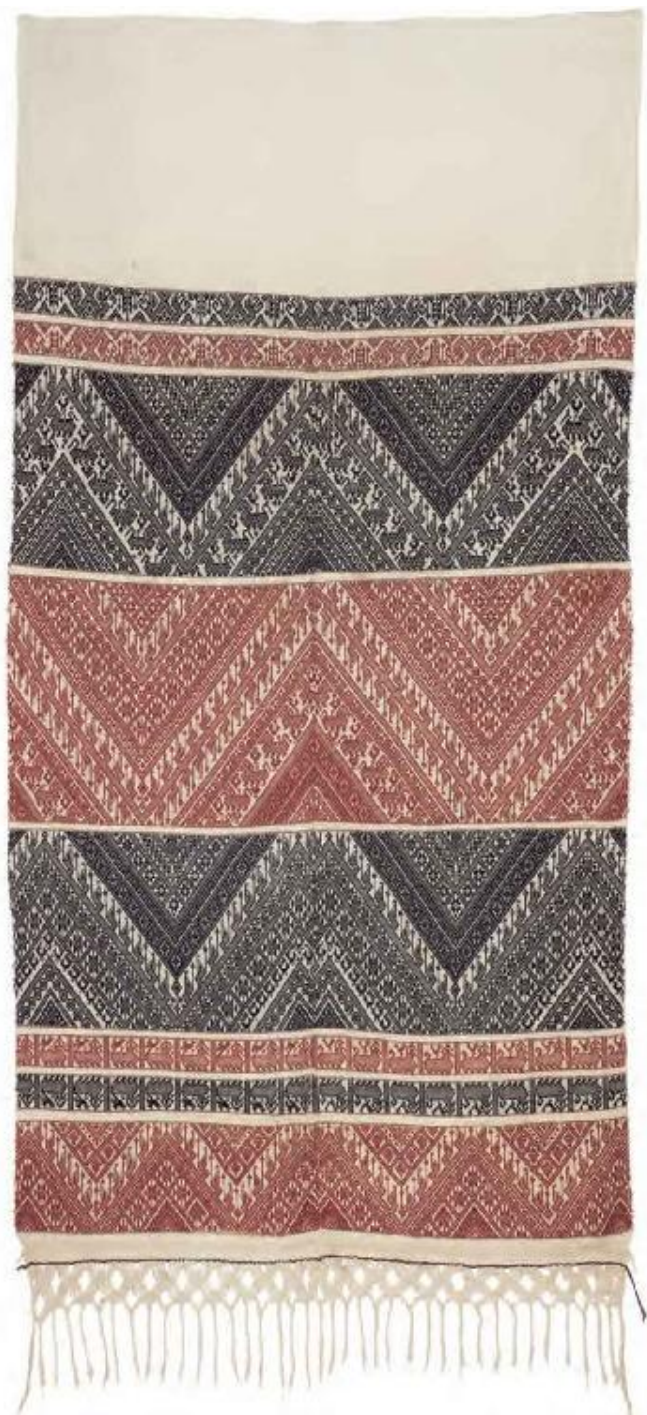




Fig. 3 (Top) wall hanging, 203 cm × 110 cm, cotton, natural dyes, Menglian 孟连, Xishuangbanna, South Yunnan. First half of the twentieth century. This hanging is composed of two panels joined together. Dai weavers in this area also produce long, narrow hangings with similar motifs to this hanging, as well as pagodas, with braided

ends, that are given as gifts to Buddhist temples. (Above) detail of elephant and Naga motifs, as well as hooks and eight-pointed stars found on other Daic weavings in Southwest China. Similar weavings with characteristic alternating red and blue bands are produced by related Tai groups in North Thailand, for use as bedcovers.

Chapter 6: the Sinitic peoples

6.1 The Tujia

The Tujia people are part the Sino-Tibetan linguistic group.¹ Their population is estimated to be around six million, living in Northeast Guizhou province, Northwest Hunan province (Xiangxi), the southern part of Hubei province and Southeast Chongqing municipality. The Tujia language, unlike most other non-Han languages of Southwest China, has largely been abandoned in favour of *putonghua* (Mandarin Chinese). The Tujia, living in lowland areas adjacent to Han Chinese settlements and administration, seem to have been one of the earliest groups to be assimilated into Chinese culture.

The middle basin of the Youshui² river, as it flows through the Northwest part of Hunan province (Longshan, Baojing, Jishou and Yongshun counties) is the centre of traditional Tujia culture; the oldest woven wedding bedcovers, for which the Tujia are well-known, come mostly from these four counties.

The term Tujia (*tu* means ‘earth’ but in this case is probably derived from the term *tuzhu* 土著, meaning ‘aboriginal person’; *jia* 家 meaning ‘family’ or ‘clan’) seems to have appeared fairly recently in Chinese texts, perhaps as late as the Qing dynasty. The Tujia call themselves *bizika* in their own language. From the Han dynasty to the Southern Dynasties (420–589 CE) the Tujia were called *youshuiman*³ ‘Barbarians of the Youshui [river area]’ by the Han people.

The Youshui area has long been home to a diverse group of minorities. The Tujia, according to Tian Ming, are a fusion of several Sino-Tibetan tribes (the Ba people arriving during the third and second century BCE and the Cong people, a branch of the Ba people, who settled during the Jin period, in the third and fourth century CE) who came down from the eastern Tibetan plateau, following the Yangzi river, with some groups (such as the Pu and the Wuman) who lived in the area before their arrival.⁴

Textile production in this area began at least 4,000 years ago. Weights for spindles (for spinning or twisting yarn) made of stone and pottery, bone needles as well as imprints of ramie fabric on pottery have been found at Maoertan, in Longshan county, dating from the Shang and the Zhou periods. At the Liye site in Longshan county, dating from the Qin dynasty (BCE 221–206), bamboo slips showing records of an important local production of military clothing were excavated, as well as weaving utensils and pottery with imprints of fabrics woven from palm and hemp or ramie.

Locally textiles are often mentioned as a form of tribute to the imperial court. The *Houhanshu*, written in the early fifth century CE, mentions that textiles were collected as taxes from the Youshui area (see Appendix 2), amongst others. During the third century CE, the Youshui basin was administered by the Shu kingdom. It is said that in 223 CE, Zhuge Liang ordered the transfer of Shu sericulture technology to this region and the planting of mulberry trees.

During the Tang and Song dynasties *congbu* and *langanbu*⁶ fabrics from Youshui were sent as tribute. As late as the second half of the nineteenth century, Youshui textiles were still popular with both the local people and with the Qing court as ‘tribute’. Under the Tongzhi reign (1856–1875), the poet Peng Shiduo wrote that in Xizhou (today’s Yongshun) ‘... a thousand people dance with Tujia brocades wrapped around their arms’.

Ramie seems to have been the principal fibre used by the Tujia in former centuries. It is only under the Kangxi reign (1662–1721) that cotton became available in the Youshui area. In the Jiaqing period (1795–1820) even though there were some cotton plantations in the area, hemp and ramie were still the most widely used fibres for weaving. A text dating from the Tongzhi period states that cotton was not grown locally, but was imported from other provinces (see Appendix 3).

Tujia hand woven brocade wedding bedcovers are locally known as *xilankapu*⁷ (a transliteration from Tujia language). The term derives from the legend of a young weaver named Xilan whose name became synonymous with ‘bedcover’, while *kapu* means ‘patterned’. The bedcovers are also sometimes called *dahua pugais* in Chinese. *Dahua* is the hook used to pick warps and insert supplementary wefts, *pugai* means ‘bedcover’. Other names for Tujia wedding bedcovers include *tuhuapugai*⁹ (‘bedcover with rural/aboriginal motifs’), *niebo pugai*¹⁰ (*niebo* means ‘to sleep’ in the Tujia language), and *langan*.¹¹

In the past, brocades accompanied the Tujia throughout their lives. As a baby they would sleep under a woven crib cover. On reaching adolescence, the girls started to weave brocades, which would become

the most important item in their wedding trousseau. Mothers helped their daughters with the weaving, and the mother of the bride was also expected to offer brocades that she had herself woven for the wedding. After the wedding, the couple slept under a brocade bedcover. During the traditional *baishou*¹² dance, brocade was worn draped over the shoulders. Brocade offerings were made during rituals venerating the ancestors, and the dead were often buried with brocades.



Fig. 1 Detail of a Tujia wedding bedcover (see next section, Fig. 40). Cotton, natural dyes, nineteenth century or earlier. Motif of snake-dragon surrounded by human figures. Chris Hall collection.

Tujia brocade wedding bedcovers display some of the richest variety and creativity in terms of figurative motifs amongst the weavings

produced by the (generally conservative) weaving groups of Southwest China. There are a number of possible reasons for this, including relative material wealth (and consequent spare time to create novel weavings), and opportunities to assimilate designs from neighbouring groups such as the Han.

¹ Xie Xiaohui [2012] notes that ‘Tujia, as a name of the ethnic group, was used only after the national ethnic identification in the 1950s. Before that time, the word *turen* was widely used to describe people living in the region now inhabited by the Tujia minority. However, *turen* in Ming and Qing documents refers to ‘people in the domain of the *tusi* (native officials),’ who were locals, or natives, rather than outsiders (*ke*, *kemin*). The relationship between Tujia and *turen* is very complicated and not readily reduced to ethnicity. Not even all of the descendants of people who were ruled by *tusi* are Tujia. When the Baojing and Yongshun *tusi* were abolished in 1727 and 1728, the local people were registered under three categories: *turen*, Han, and Miao. It is often incorrect to relate the ethnic labels of today directly to these historic terms’.

² 酉水.

³ 酉水蛮.

⁴ Tian Ming [2008].

⁵ 賓布.

⁶ 兰干布.

⁷ 西兰卡普.

⁸ 打花鋪盖.

⁹ 土花鋪盖.

¹⁰ 捏拨鋪盖.

¹¹ 兰干.

¹² 摆手.



Fig. 1 Wedding bedcover, 133 cm × 104 cm, natural dyes, silk and cotton, natural dyes, nineteenth century or earlier. He Haiyan collection. The three animals on this bedcover are called 'great snakes' (wociba) or 'dragons' by the Tujia. They are related to the Naga of Southeast Asian mythology, and they also resemble Shang period representations of 'snake-dragons'. At this early period all the representations of this mythical animal appear snake-like, and similar imagery seems to have been shared by many groups in China and Southeast Asia. The Han Chinese dragon subsequently evolved and grew legs (which make their appearance during the Warring States period), and became a fierce animal associated with imperial power. For the minority groups in the Southwest and in Southeast Asia the snake-dragon/Naga remained a benevolent beast, associated with water and symbolizing rain and prosperity. Compare representations of similar animals (some with legs or vestigial legs) on Songtao weavings (Chapter 4, Section 4.16), on 'Hong Yao' weavings from the Longjia area, on Run Li weavings from Hainan (Chapter 5, Section 5.7), and Tai weavings from the Xishuangbanna area of Yunnan (Chapter 5, Section

5.29). *In many of these representations, as in this case, the animal's body is an abstract zigzag or 'W' shape.*

6.2 Tujia weaving in Longshan



Fig. 2 Li Qiumei weaving in Liye.

Maoertan village, Liye township, Longshan county, Northwest Hunan province; Jishou county in Northwest Hunan province. 湖南省, 龙山县, 里野乡, 猫儿滩村. Surveys were conducted in January and June 2013.

Two weavers, Li Qiumei and Ye Shuiyun, were interviewed. In 1996, Ye was awarded the title of Master Craftsperson¹ by the government.

We found that the traditional functions of hand woven brocaded wedding bedcovers in Tujia families have almost completely disappeared in the areas we visited, even in the heart of the Tujia cultural area in Longshan County. The weaving technique is still practised, although making items for the traditional bride's wedding trousseau has been replaced by production of commercial weavings and official gifts, mostly wall hangings. Dozens of traditional Tujia brocading looms have been purchased by local entrepreneurs and moved to workshops in urban areas and tourist spots. This is the case in Jishou and Fenghuang so called 'old towns', which we visited,

where looms are used in ‘folk craft galleries’ to demonstrate the craft as a way of advertising the weavings for sale. In fact, the young employees we met in the craft galleries are not Tujia weavers and only know enough of the technique to give rudimentary demonstrations.



Fig. 3 Bedcover for a newborn child, made of bands of brocade on three sides of a plain indigo cotton centre. 93 cm × 67 cm, silk and cotton supplementary weft on cotton ground weave, natural dyes, nineteenth century. He Haiyan collection.



Fig. 4 Detail of Fig. 3, showing the ‘white tiger’ motif that is characteristic of these bedcovers.

The looms remaining in the countryside are used to produce traditional patterns as well as ‘modern design’ decorative panels ordered by entrepreneurs in the cities of Longshan, Jishou and Fenghuang, who provide weavers with the yarns and pay about ten RMB per centimetre for the work. A weaver can earn about 80 RMB per day for weaving complex patterns. Some traditional wedding bedcovers are still produced, but they are mostly sold in tourist shops

the form of separate panels (traditional wedding bed covers were made of three or four panels) for 2000 to 3000 RMB per panel.

Exceptionally, this survey was made difficult by the fact that in the Longshan area, the weaving technique has become a ‘trade secret’ as a result of its economic value. Some weavers who we encountered were reluctant to show the weaving process to strangers as they worry that competitors will ‘steal their jobs’ as a result. Longshan is the only place where we encountered such concerns during our research.



Fig. 5 Detail of a Tujia wedding bedcover. ‘White egret standing on a lotus’ motif. See Fig. 35.

Weavers told us that in the past, warps and tabby ground wefts were made of cotton, while silk, wool and cotton were used for supplementary wefts. Nowadays, warps and ground wefts are made of commercial cotton. Commercial wool yarn (often mixed with synthetic fibres) is used for most supplementary wefts. As can be seen from textiles collected in the past 25 years, the use of natural dyes for dyeing supplementary wefts has long since been abandoned.

The majority of Tujia brocade patterns are based on combinations of abstract lozenges and hooks (See Fig. 10), however dozens of stylized figurative motifs can also be seen. Snake motifs, represented either in

the form of a 'long snake' (*wociba* in the Tujia language; Figs. 1 and 40) or 'baby snake' (*wobi* in Tujia) are part of a wider heritage of snake-dragon and Naga motifs that form an important part of decorative culture in China, Tibet and Southeast Asia. The snake, considered a precursor of the dragon, was revered as an auspicious symbol, notably by the Ba people as recorded in the *Shanhaijing*² (a treatise on mythology dating from the Warring States period).

Another stylised motif that may be inherited from the Ba culture is the 'white tiger' pattern (Figs. 3 and 4), found on textiles woven for newly born children, for whom it is considered a protector. More generally, the tiger is regarded as a protector for young children across China (amongst both Han Chinese and minority groups), and tiger heads appear on a variety of charming embroidered hats made for infant children.

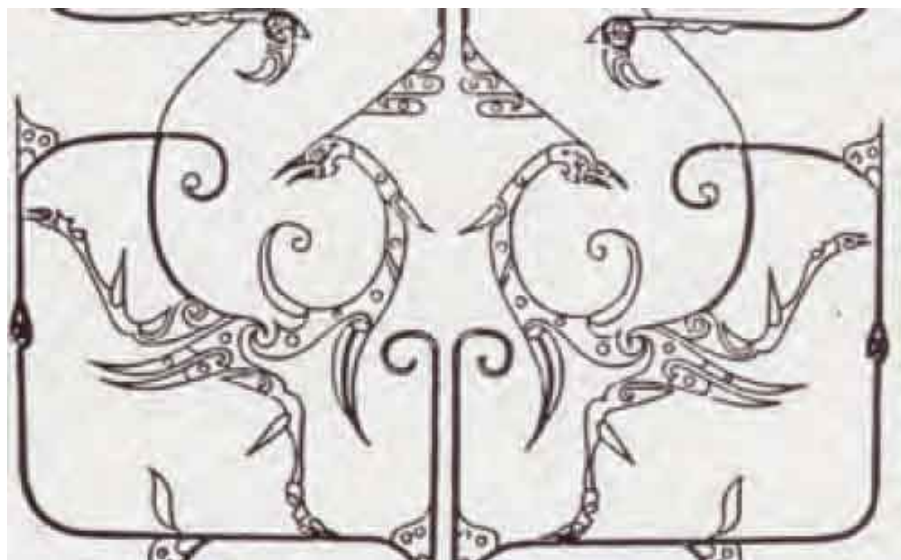


Fig. 6 Drawing of a bird motif embroidered on a textile excavated from a Chu tomb in Mashan, Jiangling, Hubei province.

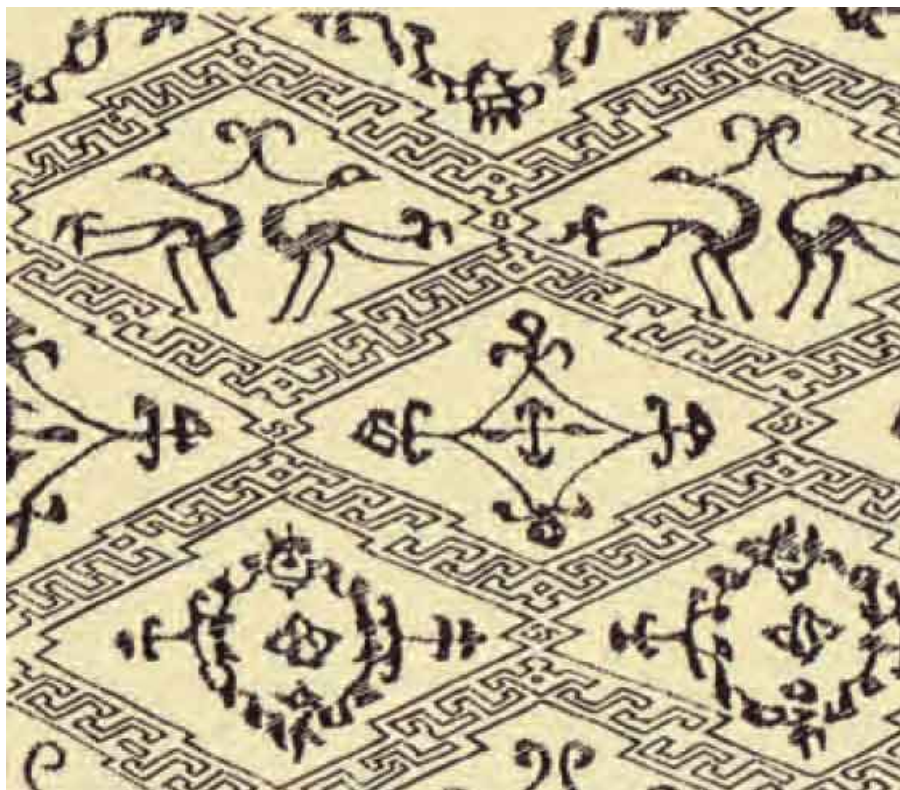


Fig. 7 Drawing of a bird motif woven on a textile excavated from a Han dynasty tomb in Mawangdui, Hunan province.

Another motif, the egret, *lusi* or *lusicailian*, ‘egret standing on lotus’ (Figs. 5 and 35) resembles motifs on Chu kingdom textiles excavated at Mashan, (Fig. 6) and Han dynasty textiles found at Mawangdui (Fig. 7). The Chu people are said to have venerated the *luan*,⁴ a legendary bird similar to the phoenix and said to have been inspired by a pheasant. The similarity in conception and the pairs of backwards-facing birds raise the possibility of continuity with ancient designs.

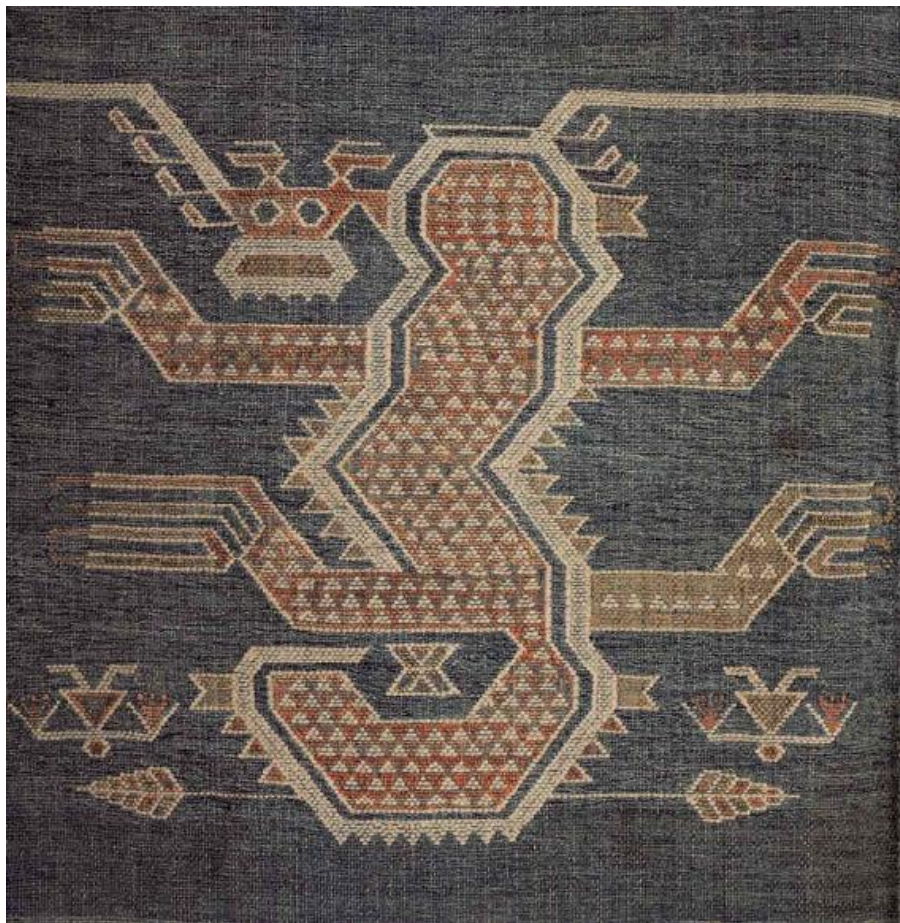


Fig. 8 Detail of bedcover shown on Fig. 9 (inverted to show the dragon motif more clearly).



Fig. 9 Wedding bedcover, 136 cm × 120 cm, silk and cotton, natural dyes, nineteenth century or earlier. This unique textile has a nine-dragon composition. Each dragon is accompanied by two human figures carrying laden shoulder poles, suggestive of a good harvest. It seems to display Han Chinese influence, combining the original snake-like form and body texture of the Tujia wociba (see Fig. 1) with characteristically Han Chinese features such as legs with four claws and a prominent head with a 'beard'. The 'head-down' orientation of the dragon suggests that the prototypes for this motif may have been Yuan or early Ming dynasty designs that sometimes display this orientation, with the dragon curled up in a 'C' shape. Chris Hall collection.



Fig. 10 Wedding bedcover, 126 cm × 109 cm, silk and cotton, natural dyes, late nineteenth century. He Haiyan collection.

This bedcover is made from four woven panels decorated with the 24-hook motifs, which is the most common pattern for this type of textile. The hook motif may also be composed of 8, 12 or 48 hooks. Hooked motifs are sometimes said to represent a frog, which is associated with protection, as well as fertility (rain). During the Baishouwu 摆手舞 Tujia festival, a 48-hook patterned bedcover is hung behind the altar where there is a statue of Babu Dawang 八部大王, the main Tujia ancestor god [Tian Ming 2008]. The textile is also decorated with 'lock' motifs on the upper and lower borders of the second panel from the left, and 'monkey's hand' motifs on the upper and lower borders of the first panel from the left.



Fig. 11a, 11b The traditional horse pattern, known in the Tujia language as mabi 马毕, meaning 'little horse', is most often seen on two-panel wedding bedcovers with alternating indigo blue and white horses. He Haiyan collection.



Fig. 12 Stylised' chive' motif on a nineteenth century wedding bedcover, natural dyes. He Haiyan collection.



Fig. 13 Geometric composition on a wedding bedcover, nineteenth century. He Haiyan collection.



Fig. 14 An unusual two-layers composition, with stylised floral motifs set against a wanzi lattice background.



Fig. 15 The 'eight-hook' motif.

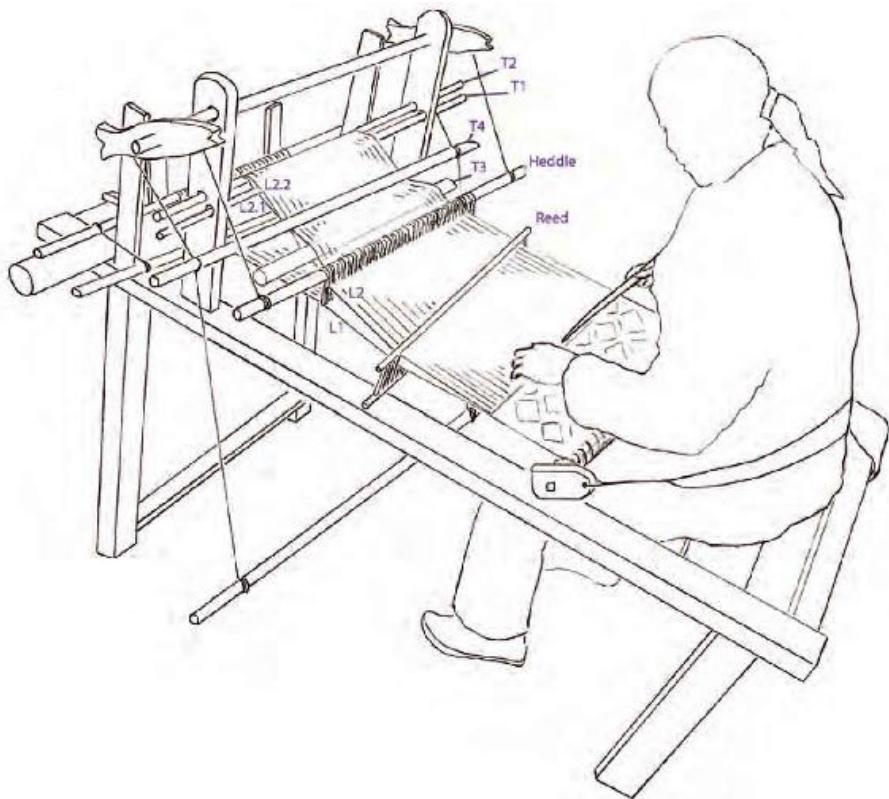


Fig. 16 Ye Shuiyun at her loom.

The loom

Tujia brocade is woven on a back-tension loom with one tabby heddle connected by cords and short rockers ('crows') to a bamboo tube above the warps (T4) and to a transverse treadle activated by both of the weaver's feet.

When the treadle is pushed down, the tabby heddle is raised and T4 is simultaneously pushed down, which helps depress the upper warps layer L2 to create the tabby counter shed.

A pattern helper system made of three bamboo tubes (T1, T2 and T3) separates the warps upper layer (L2) into two layers (L2.1 and L2.2), thereby facilitating hand selection of warps for the insertion of supplementary wefts. T1 and T2 are fixed in the loom frame, and T3 is placed in one of three positions: lower, middle or upper. When T3 is in the middle position, T1 and T2 are inactive; the upper warps layer is left as a single layer.

Layer L2.1 goes over T2, under T1 and T3. Layer L2.2 goes over T2, T1 and T3. L2.1 and L2.2 are each composed of one warp out of two.

A beater-shuttle is used to insert the ground weft. Short, pre-cut

lengths of supplementary wefts are kept close to hand by the weaver in a loose pile: the Tujia weaver uses a long hook-shaped tool, called *dongdao*⁵, *dahua*⁶ or *tiaohuagou*⁷ (Fig. 24) to insert these.



Fig. 17 Detail of Ye Shuiyun's loom, showing the Tubes-and-Layers system.

Loom characteristics

Number of warps: 552

Number of warps per reed space: 2

Brocade width: 43 cm. Modern looms tend to be wider than older ones, which have a width of 30 to 38 cm.

Wefts are beaten in using a beater-shuttle



Fig. 18 (Left) detail of a wedding bedcover, silk and cotton, natural dyes, nineteenth century. Private collection.

(Right) woven belt excavated from a Chu tomb in Jiangling, Mashan in southern Hubei province, third century BCE. The central animal motif in the Tujia weaving is called a shibi 'small wild beast' in Tujia language, and is said to represent a mythical creature. The geometry of the Tujia pattern, with lozenges separated by elongated hexagons, is similar to that of the belt from the Chu tomb at Mashan.



Fig. 19 Geometric designs used by Tujia weavers: (left) the 'fish scale' motif, (right) hexagon motif. Nineteenth century, He Haiyan collection.



Fig. 20 Wedding bedcover, 127 cm × 112 cm, cotton, natural dyes, nineteenth century. This exceptional textile, made of four woven panels, shows a bird design, possibly a cuckoo, which is mostly used on baby's bedcovers and is said to symbolise spring, with flowers on its tail and surrounded by individual wanzi motifs (swastikas, an ancient symbol of good fortune). He Haiyan collection.



Fig. 21 Wedding bedcover, 143 cm $\times$ 126 cm, silk and cotton, natural dyes, nineteenth century. The main pattern represents stylised phoenix and flowers on an indigo blue background; the upper and lower borders are decorated with a chive flower 韭菜 vine. He Haiyan collection.

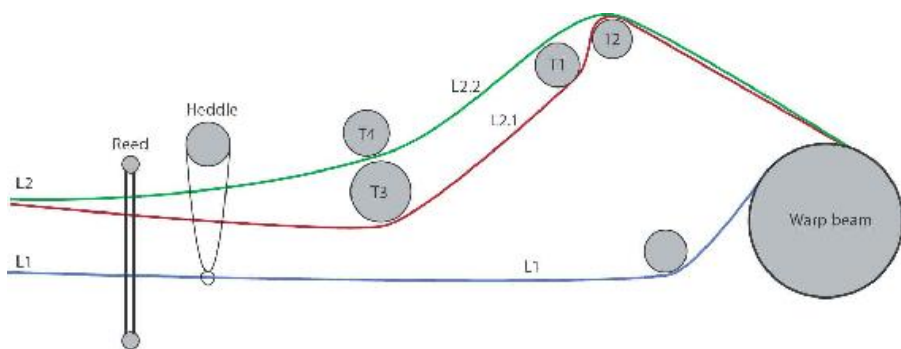


Fig. 22 Loom mechanism: tabby natural shed.

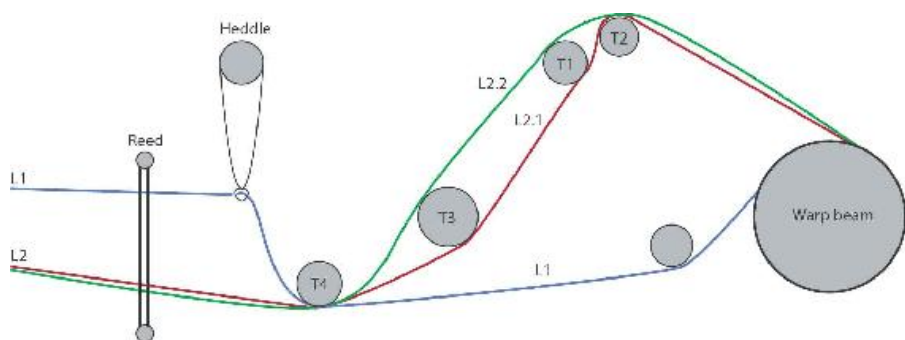


Fig. 23 Loom mechanism: raising the heddle to open the tabby counter shed.

Weaving technique

The reverse side of the brocade faces upwards on the loom.

For the simpler pattern (known as *dangtou*), located at the two extremities of the woven panel, the supplementary wefts always float above the same groups of three warps, and only the lower and middle positions of the large bamboo tube T3 are used. For the more sophisticated, main pattern *xiewen*, located in the centre of the panel, the three positions (lower, middle, upper) of T3 are used. In order to separate the upper warps layer of the tabby natural shed into two layers, tube T3 has to be placed either in the lower position (between the tabby heddle and T4) or in the upper position (above tubes T1 and T2). The treadle is always depressed while using the Tubes-and-Layers mechanism, in order to apply pressure to tube T4 and to keep the heddle in the raised position, opening a tabby counter shed.

After the upper warps layer has been separated into two layers, opening an upper shed, the beater is inserted (Fig. 27) between the upper two warps layers (composed of three warps out of four: two warps belonging to L1, and one warp belonging to either L2.1 or L2.2) and the lower warps layer (composed of one warp out of four belonging to either L2.1 or L2.2). Tube T3 may then be pushed back to the middle position, but the weaver does not always do this.

The three positions of T3 are used as follows:

1. T3 in the middle: tabby weave shed (either natural shed or countershed); warps are only separated into two layers (L1 and L2), one out of two warps is raised (Figs. 22 and 23).
2. T3 in lower position (between the heddle and tube T4): patterning shed, L2.1 down, L1 + L2.2 up; three out of four warps are raised (Figs. 26, 27 and 28).
3. T3 in upper position (above tubes T1 and T2): patterning shed, L2.2 down, L1 + L2.1 up; three out of four warps are raised (Figs. 25 and 29).



Fig. 24 The Tujia weaver uses a long hook-shaped tool, called a dongdao, to insert discontinuous supplementary wefts.

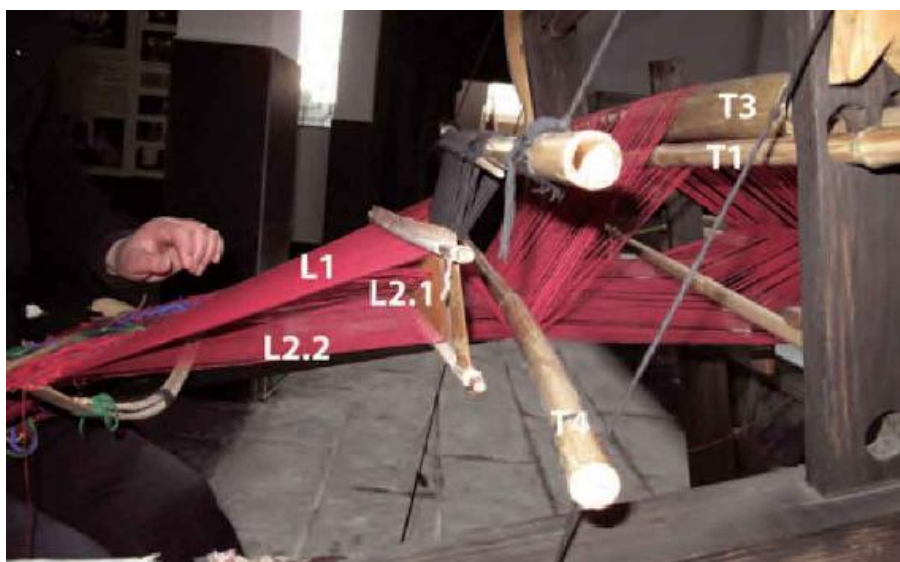


Fig. 25 Tube T3 on top of tubes T1 and T2, separating warps layer L2 in two sublayers, L2.1 and L2.2. See diagram in Fig. 29.

Using these different tube positions, three different kinds of weave can be made.

1. Tabby weave

During the insertion of the ground tabby wefts, the tube T3 stays inactive in a middle position. Tabby wefts are inserted with a beater-shuttle or simply by pulling the yarn with the hook; the counter shed is opened by pushing down the transverse treadle.

2. Dangtous weave (Fig. 34a)

This pattern, located at both extremities of the panel, is woven with a technique called *pingwen*. The Tujia meaning of *pingwen* differs from the Han Chinese meaning, which is ‘tabby weave’. The Tujia call ‘tabby weave’ *bubian*, ‘textile border’, since this process is used for the first and last few millimetres of the cloth.

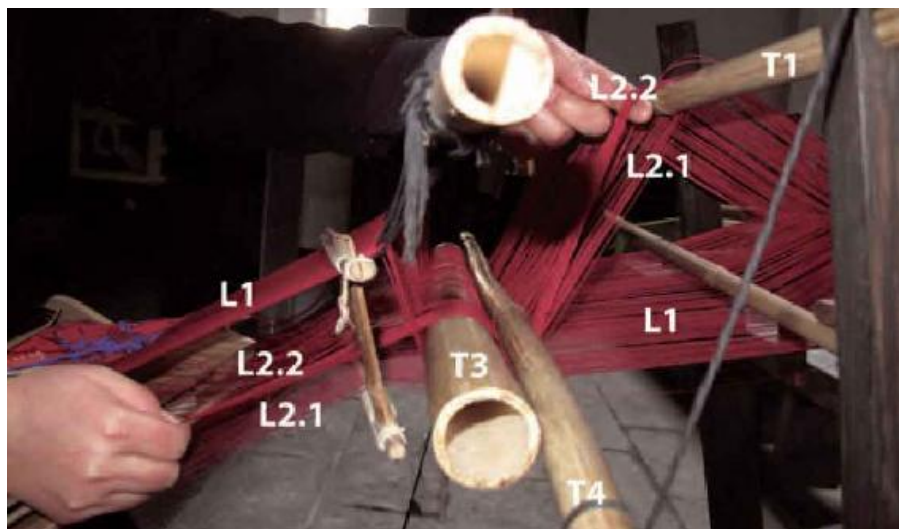


Fig. 26 Tube T3 in lower position, Ye holds warps sublayer L2.2 in both hands. See diagram in Fig. 28.



Fig. 27 Ye inserts the beater to open the patterning shed (L1 and L2.2 form the upper warps layer, L2.1 the lower one).

Dangtou is woven by positioning the large bamboo tube T3 alternately in the lower position (for supplementary weft patterning) and in the middle position (for inserting tabby ground wefts). The tube T3 is never used in the upper position for *dangtou*. Two rows of ground wefts (one in the natural shed, one in the counter shed) alternate with one row of patterning supplementary weft.

3. *Xiewen* 斜纹 weave (Fig. 34b)

The central or main pattern located between the two extremities of the panel is called *xiewen*, as noted above. The Tujia meaning *xiewen* differs slightly from the Han Chinese meaning of these characters: ‘twill’, though the Tujia *xiewen* is similar to twill in some respects, such as the offsets of successive rows of pattern wefts. This weave is produced by positioning the large bamboo tube T3 successively at the lower position (for supplementary weft patterning), middle position (for inserting tabby ground wefts) and upper position (for supplementary weft patterning).

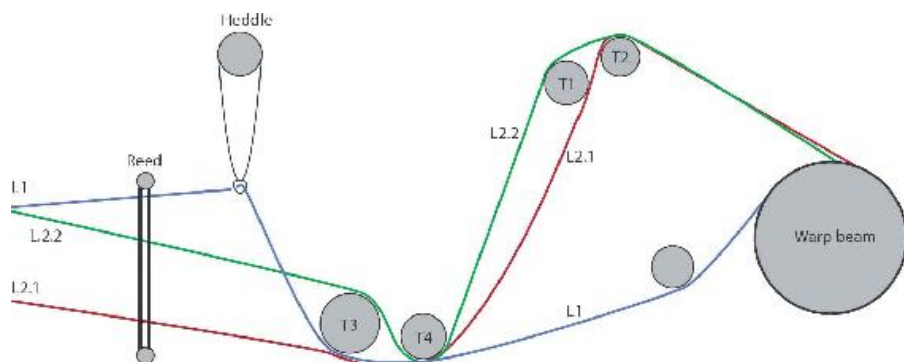


Fig. 28 Loom mechanism: tube T3 in lower position, separating warps layer L2 into two sublayers L2.1down and L2.2 up See photo Fig. 26.

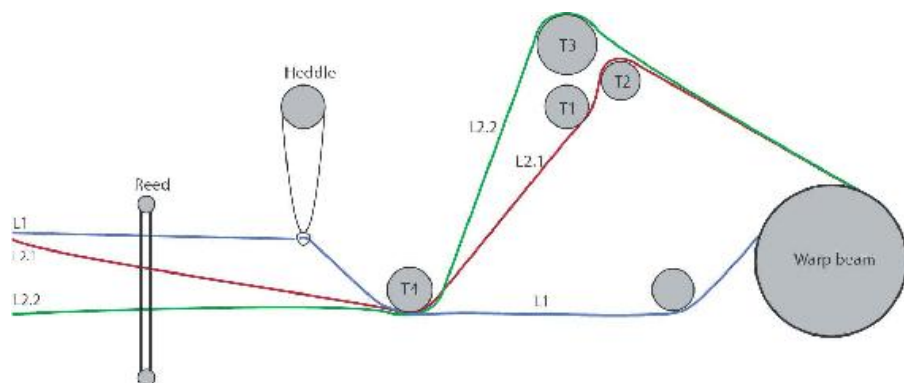


Fig. 29 Loom mechanism: tube T3 on top of tubes T1 and T2, separating warps layer L2 in two sublayers, L2.1 up and L2.2 down. See photo Fig. 25.

All the weavers in our survey used only discontinuous supplementary wefts for patterning the brocade. Some continuous coloured wefts were used to produce a background colour, but they were all inserted in a tabby weave structure.

When T3 is either at the lower or upper position, an upper layer composed of groups of three warps out of four is kept separate from the lower warps layer (one warp out of four) by the beater. The hook is inserted under several groups of three warps (the number of groups depends on the pattern) and the discontinuous patterning wefts are pulled through with the hook.

Tujia brocade has one of the lowest thread counts of the brocades that we examined (13 warps, 20 wefts per cm) and the weaving process is relatively fast thanks to the three-tubes pattern helper system. The supplementary wefts can be inserted relatively quickly, as all floats are under a group of three warps, which are already preselected by the position of tube T3.

Ye says that she weaves about three centimetres a day of the most complex patterns, while she can produce up to ten if the pattern is simpler. Generally, weavers produce an average of one to two centimetres of brocade per hour. A Tujia weaver only has to count the number of groups of warps, not the individual warps, but she still has to memorize the pattern, or to compare the warps on an old fragment.



Fig. 30 Wedding bedcover panel, 102 cm × 32 cm, cotton, natural dyes, nineteenth century. Private collection.

Glossary of Terms

Most Tujia people have long forgotten the original Tujia language, and only a few Tujia terms related to weaving survive:

Brocaded bedcover: *xilan kapu*

Brocade loom: *ka pu ta*

Warp (or thread in general): *tu mu*

Beater/sword: *so lo*

Cloth beam: *ku ban*

Spinning wheel: *qiu pei*

Bamboo tube (shedding helper): *mu*



Fig. 31 Detail of the front and reverse sides of Fig. 30.



Fig. 32 Detail of fragment analysed in Fig. 34b.



Fig. 33 Detail of reverse side of fragment analysed in Fig. 34b.

Structural analysis

Supplementary weft compound tabby used for a baby's crib bedcover, early twentieth century. Panel is 34 cm wide. Thread count: 20 wefts (10 ground wefts, 10 supplementary wefts), 13 warps per cm.

Warps: white hand-spun cotton, 1-ply, S-spun.

Ground wefts: natural indigo blue hand-spun cotton, 2-ply, S-spun.

Supplementary wefts:

Blue background: natural indigo blue hand-spun cotton, 3-ply, Z-spun.

White pattern: white hand-spun cotton, 4-ply, Z-spun.

Pink and salmon-pink pattern: silk floss in pink and salmon (synthetic dyes), 1-ply, no apparent torsion.

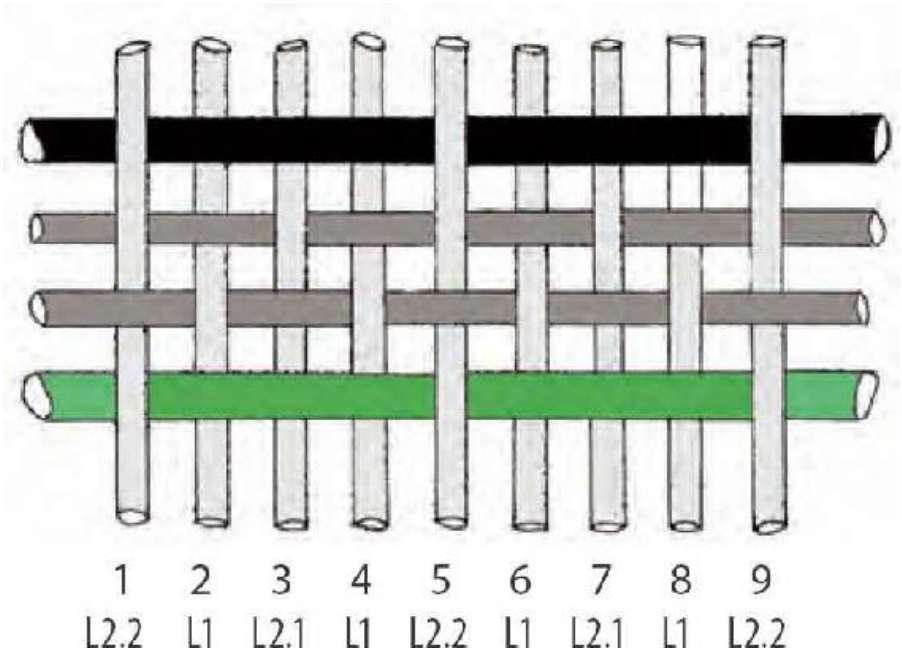


Fig. 34a Weave structure of the dangtouw pattern.

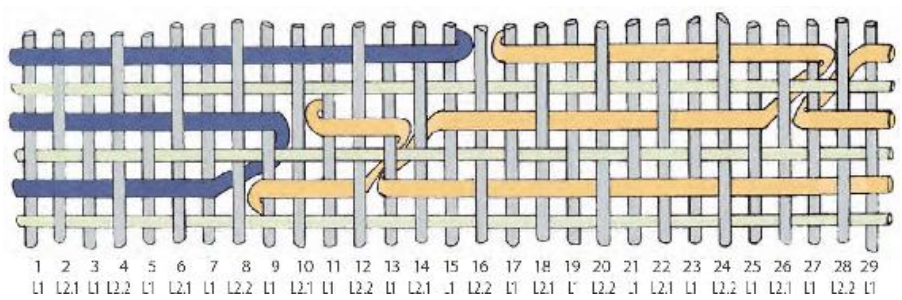


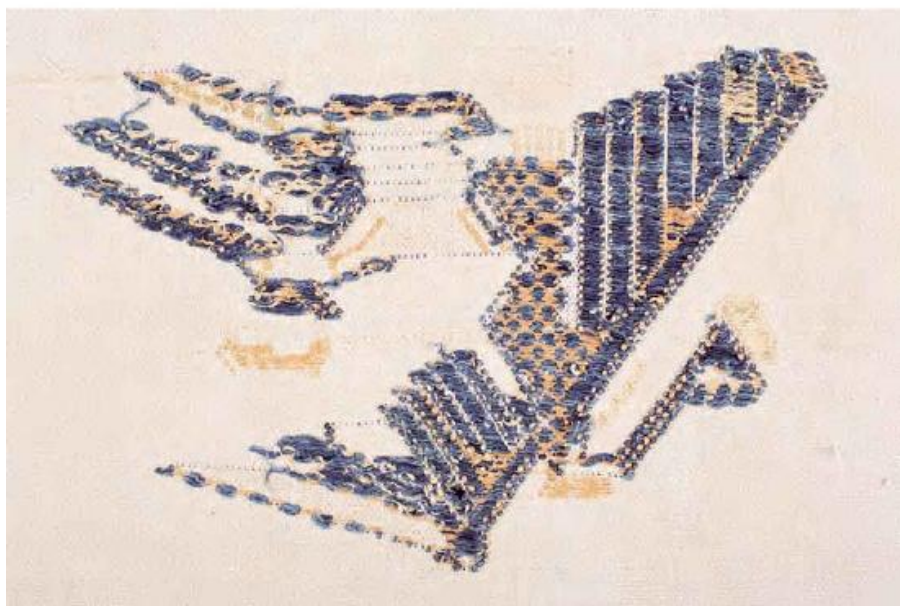
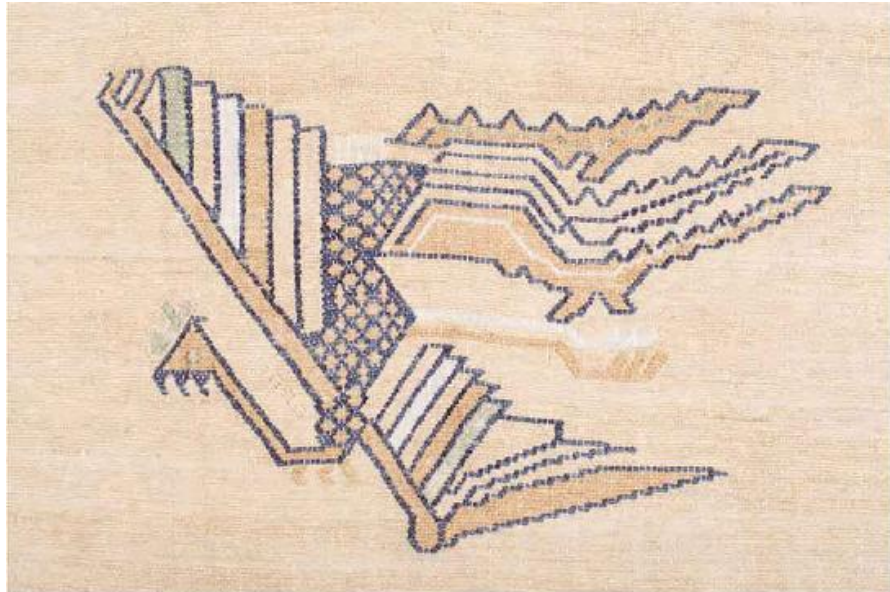
Fig. 34b Weave structure of the xiewen pattern. Warps sublayers (L2.1, L2.2) correspond to those in Figs. 28 and 29.



Fig. 35 Wedding bedcover, 98 cm × 66 cm, silk and cotton, natural indigo dye, nineteenth century. One of the most delicate of Tujia compositions, this enigmatic pattern suggests links with ancient textile designs from the Warring States and early Han periods from the same area of North Hunan and South Hubei provinces. He Haiyan collection.



Fig. 36 Wedding bedcover, 150 cm × 103 cm, silk and cotton, natural dyes, nineteenth century. A composition of stylised phoenix and flowers on an unusual off-white ground. He Haiyan collection.



Detail of the front and reverse of one of the bird motifs, showing the discontinuous supplementary wefts that make up the design.



Fig. 37 Wedding bedcover, 120 cm × 96 cm, silk and cotton, natural dyes, nineteenth century or earlier. The unusual pattern includes the Chinese characters shou 壽 (longevity) and xi 喜 (happiness). The exceptional colour composition includes indigo as well as green and gold which are rarely seen in larger Tujia brocades. Chris Hall collection.

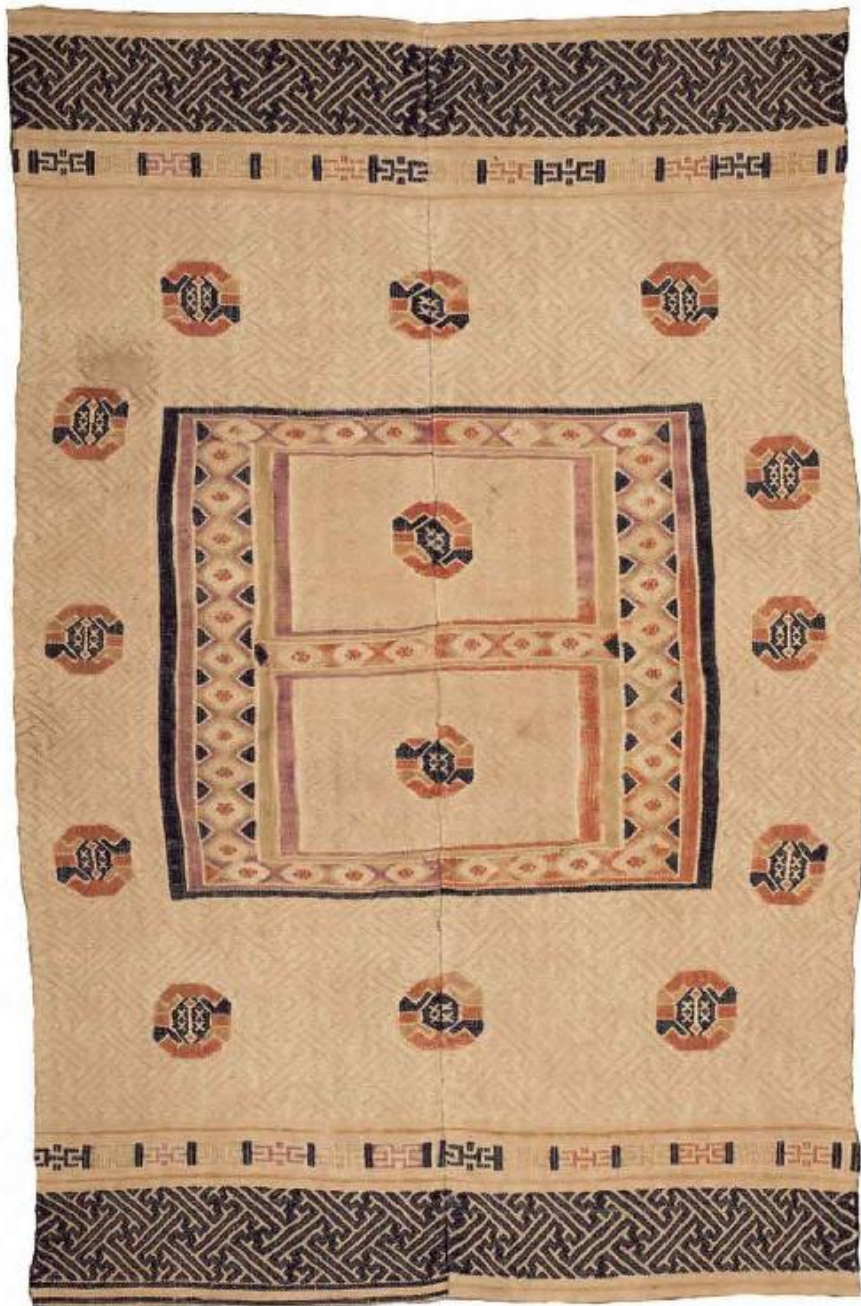


Fig. 38 Wedding bedcover, 87 cm × 56 cm, silk and cotton, natural dyes, nineteenth century or earlier. A unique and enigmatic composition on a wanzi lattice background. Chris Hall collection.



Fig. 39 Wedding bedcover, 140 cm × 120 cm, cotton, natural dyes, nineteenth century or earlier. Decorated with stylised 'chive' motifs. Chris Hall collection.

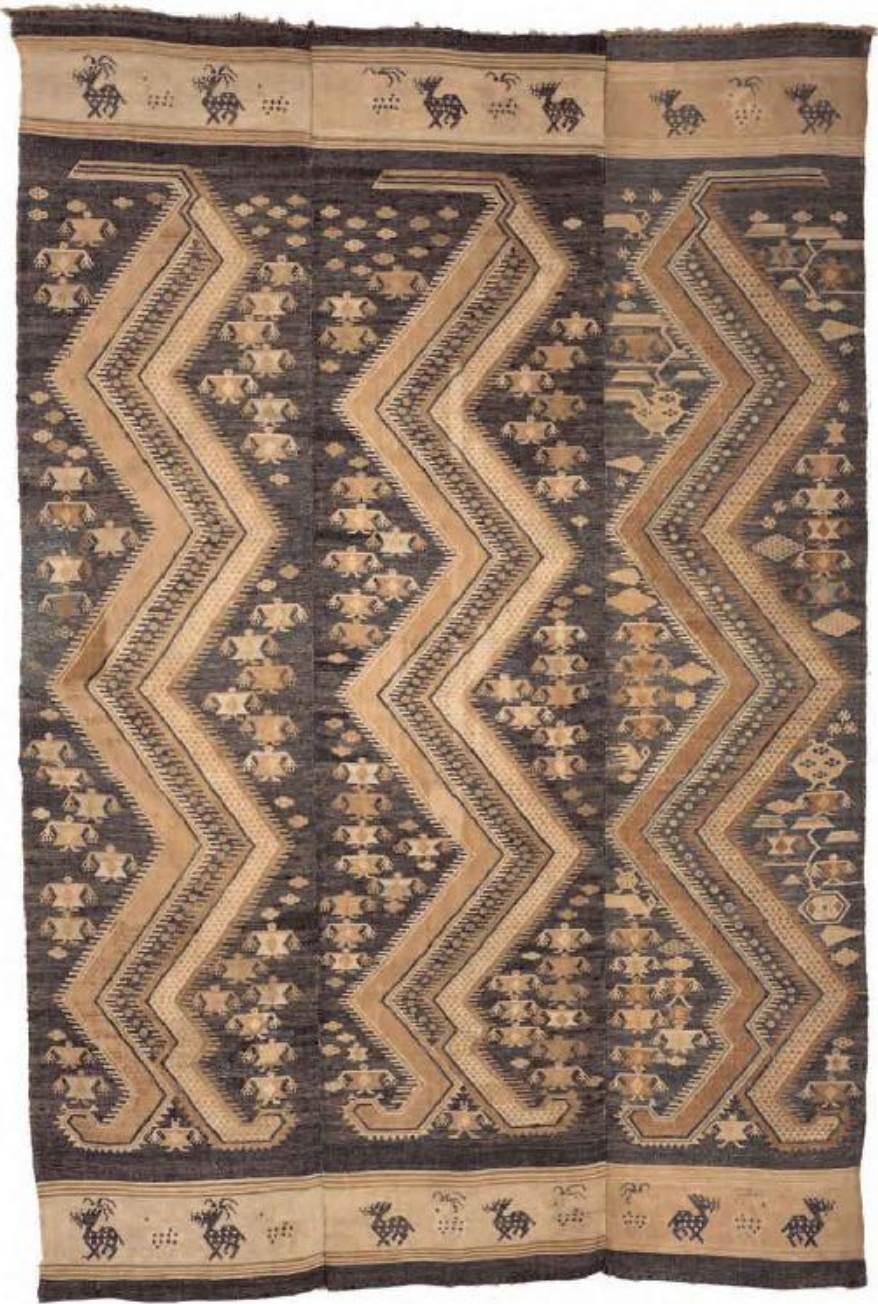


Fig. 40 Wedding bedcover, 167 cm × 113 cm, cotton, natural dyes, nineteenth century. A unique design, with three large 'snake-dragon' motifs (compare Fig. 1) surrounded by human figures. The snake-dragon is regarded as the provider of rain and good harvests, guaranteeing the well-being of the people and living in close proximity with them. The deer motifs on the upper and lower borders are also unusual on Tujia bedcovers, and may represent a borrowing from Han Chinese iconography. Chris Hall collection.

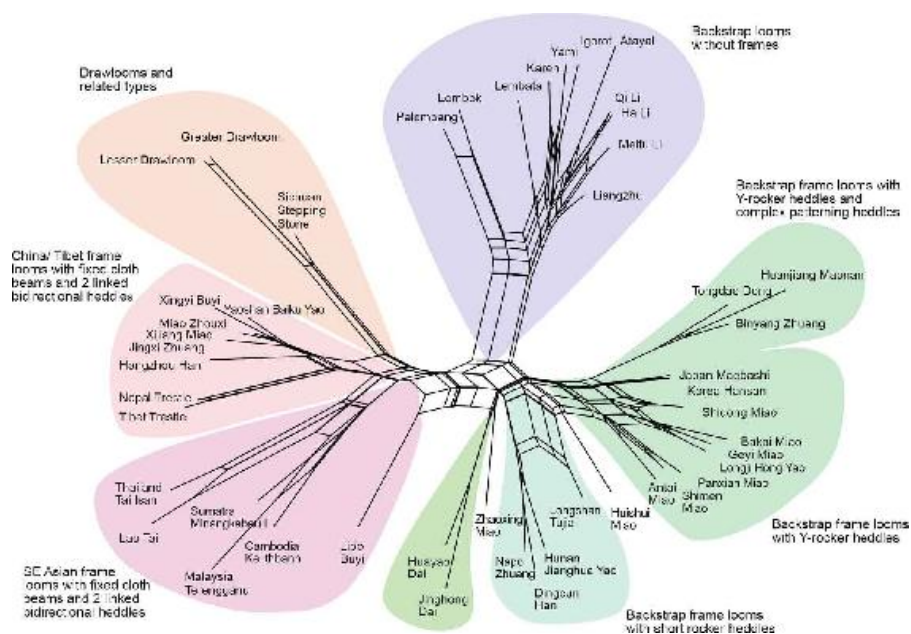


Fig. 1 NeighborNet plot for Asian looms, depicting the relationships between looms in this study. Structurally related looms cluster together: the main groupings are highlighted in colour.

- 1 民间工艺美术家.
- 2 山海经.
- 3 鹭鸶.
- 4 鸾.
- 5 动刀.
- 6 打花.
- 7 挑花勾.
- 8 档头.

Part III

Analysis

Chapter 7: the evolution of the Asian loom

7.1 Introduction

Though the Asian looms described in this book seem diverse, there is good reason for thinking they are related. Many of them share features that are unique to the region, such as body-tensioning, the use of a coil rod, and distinctive arrangements for suspending and raising heddles. Compared with technologies used for weaving in other parts of the world there are some striking differences. The most ancient type of loom in Europe seems to be the warp-weighted loom, a type of vertical loom where a set of weights is used instead of a warp beam. In central Asia the oldest type of loom appears to be a horizontal loom that is staked out in the ground with four posts. This loom seems to have spread as far as north Africa, and as far east as Tibet. In the Americas, a variety of looms and weaving techniques are found, including a body-tensioned loom.¹

To investigate the relationships between Asian looms will use some novel techniques to build a phylogenetic tree ('family tree') and thereby develop a model that describes their origins and development. We are able to do this because of some defining features of way in which brocade weaving traditions, and loom designs in particular, are transmitted from generation to generation. These have been discussed already in the introductory chapters. To recap:

1. Looms and brocade weaving techniques are passed from generation to generation within family groupings, mainly from mother to daughter, and are not shared outside the local community.
2. Weaving communities place great importance on the accuracy of transmission: mistakes by novice weavers are frowned upon and variations are rare. Nevertheless, small changes or innovations may

occur from time to time.

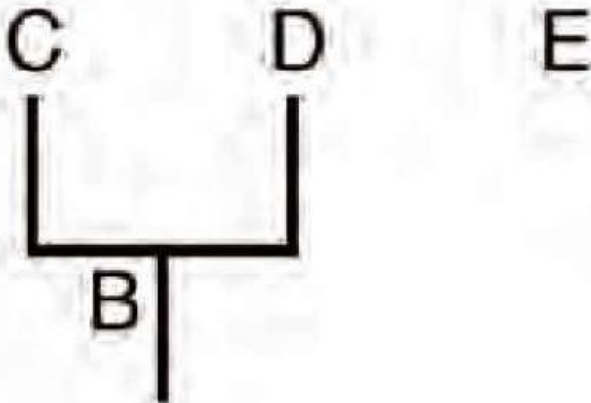
Faithful transmission from generation to generation allows us to illustrate descent by connecting generations with a line. Migration and the founding of new settlements occasionally gives rise to branching. Together, we expect these processes might give rise to relationships among these traditions that resemble a family tree.

Tree-like relationships are not the only ones that might characterize the relationships between a group of cultural traditions, and we will not accept this model uncritically. To anticipate the results of our analysis however, we find that a tree-like model is a reasonable representation of the relationships between weaving traditions and looms in our study, though there are some instances where the relationships are more complex.

As an illustration of the logic that underlies our analysis, consider three traditions C, D and E. These might be weaving traditions in three different villages, for example.

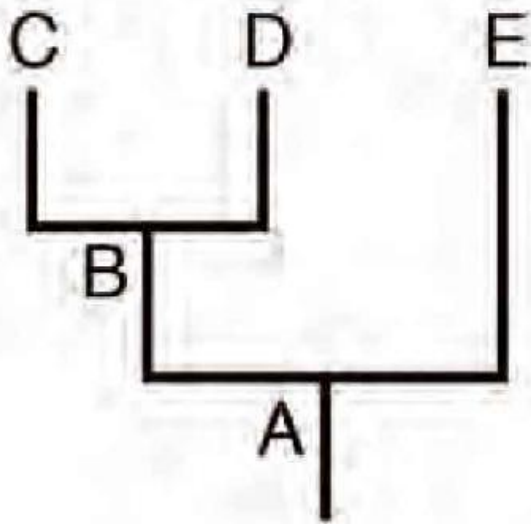
C D E

If traditions C and D share the largest number of features, then all other things being equal we deduce that they are the most closely related, and derive from a relatively recent ancestral tradition B:



If tradition E is also related to C and D, but it shares fewer features with them then it may share a common ancestor with C and D that

lies further back in time (A):



7.2 Methods and Results

This simple diagram summarizes the relationships among C, D and E. We constructed it in a ‘top down’ manner, but read in the reverse direction from the bottom upwards, it suggests how these three traditions may have evolved from an ancestral tradition A.

The method that we have used to construct the tree in this example is called ‘neighbour joining’. The procedure we have used is one that is frequently used in biology (where C, D and E represent neighbouring species or ‘taxa’) and linguistics; its application to other areas of human culture is a relatively new, but growing.²

As mentioned, tree-like relationships between cultures are not the only kind that we expect to find. In the case of weaving for example, if weavers in the villages C, D and E have all recently replaced their traditional looms with looms of more modern design from an external source (an increasingly common occurrence in Asia), then we will discover no tree-like relationship between the loom designs of the three groups. Furthermore, if C, D and E have kept their original loom designs but added new features borrowed from other traditions a tree-like ancestry may be partly obscured by the recent additions, but still recoverable in some instances.

When considering large numbers of cultural traditions, working out whether a tree can represent the relationships and finding the most plausible model becomes a complex task. For this reason we use systematic numerical methods, as described in the next section. A distinct advantage of numerical methods is that they allow us to check quantitatively whether our model fits the evidence well, or not. They also allow us to use a more sophisticated method (such as Bayesian analysis) for constructing ‘trees’ than the Neighbor Joining method used in the example.

7.2.1 Looms, characters and coding

The method we use for characterising looms is similar to that used by linguists to investigate the connections between languages. Linguists use lists of ‘cognates’ (terms which resemble each other in sound and meaning) or structural features (for example, rules of grammar). Typically a list of 100 or more of these cognates and features is used to characterize each language. Coupled with numerical analysis

techniques, these methods have been used to construct family trees for many of the world's major language groups, such as the Indo-European and Austronesian language families.³

For our analysis of looms, our equivalent of the linguist's 'cognate' is a 'character'. This is a basic functional feature of a loom, such as the presence of a warp beam, or a heddle of a particular design. For our sample of looms we constructed a table where each character is recorded as present (1) or absent (0). The list of characters was chosen such that all the functional features of the looms and their interconnections are included, so that it is possible to reconstruct each loom in outline form from the list of its characters.

The complete list of characters for all the looms in our survey includes more than 350 distinct features (listed in Appendix 5). Of these, about 230 occur in more than one loom but not in all of them, and thus can be helpful in elucidating relationships. These characters are the ones that are used to construct our tree. Some characters are shared by all looms in our sample: these are not helpful for constructing a tree, but they tell us what features ancestral looms are likely to have had.

The set of looms that we investigated consists of 48 looms, of which 21 are looms from Southwest China discussed in Part II. The remainder are looms from the rest of Asia, including East Asia (China, Japan and Korea), Southeast Asia (SEA) and Island Southeast Asia (ISEA). These were chosen to represent the other main types of loom present in the region. The list of looms and the sources of data on them are given in Appendix 5. All of the looms are contemporary (still in use today, or in ethnographically recent times), except for the Liangzhu culture backstrap loom (described in Chapter 2), which dates from between 3300 and 2300 BCE. This loom is the oldest loom in Asia for which we have clear archaeological evidence, and we use it for identifying the 'root' of our tree.

To investigate the relationships between looms, we have applied two different analytical techniques to our table:

1. **Neighbornet Plot:** this is a type of clustering analysis: it identifies clusters of taxa (looms) with similar features. The Neighbornet algorithm⁴ arranges looms in a star-shaped plot, the arms of which fall into distinct groups if clusters exist. Neighbornet plots also give a rough indication of where 'conflicts' exist in the data (looms that share features of more than one cluster), in the form of a net-like portion in the centre of the plot. Neighbornet makes no *a priori* assumptions about the type of relationships that exist in the data, and provides a useful picture of what natural groupings exist.

2. **Bayesian Phylogenetic Analysis:** this method assumes that evolutionary relationships exist and, given this assumption, yields an estimate of the best-fit phylogenetic tree. As described above, the tree is, in essence, a model that describes how the looms evolved over time. The Bayesian methods also provides a quantitative check (the Retention Index) of how well a tree-like model can account for the data. Details are in Appendix 5.

7.2.2 Results

The NeighborNet plot is shown in Fig. 1. In broad terms, it divides Asian looms into three groups: simple body-tensioned looms at the top, body-tensioned looms with frames on the right, and frame looms with fixed warp beam and cloth beam, grouped on the left of the plot. These divisions correspond well with our intuitive classification of these looms.

Within the sub-group of body-tensioned looms with frames, which form the bulk of the looms in our study area in China, there are three main types:

1. Looms with short rocker heddles. This includes the traditional North China loom, represented by the loom from Dingcun in Shanxi province, two looms from Hunan province (a Tujia and a Yao loom) and the Zhuang loom from Napo in Guangxi province.
2. Looms with a long Y-shaped bar supporting the heddle, linked to a foot treadle. This group includes several Guizhou variants, as well as some traditional looms in Korea and Japan. Looms of this type used by Daic weavers (Dong, Maonan and Zhuang) form a subgroup with Complex Pattern Heddles.
3. Dai (Tai) looms from western Yunnan, with Complex Pattern Heddles.

The Miao loom from Huishui, which has a frame but no suspension system for the heddles, falls between the first two categories.

Looms with fixed warp beam and cloth beam (non-body tensioned types) also fall into three groups:

1. Southeast Asian looms with fixed cloth beam and two linked bidirectional heddles
2. China and Tibet looms with fixed cloth beam and two linked bidirectional heddles
3. Drawlooms and Stepping Stone looms

The loom used by Buyi people from Libo occupies the middle ground between the backstrap types and looms with fixed cloth beams and bidirectional heddles. This loom gives some important clues to the

way in which the looms with fixed cloth beams evolved, a point we will return to below.

The groupings in the NeighborNet Plot are remarkable in that they have been obtained merely by listing the individual characteristics (characters) of the looms, with no *a priori* classification of the looms themselves. The results confirm the intuitive classifications that we used in the introductory chapters.

The phylogenetic tree for our group of looms is shown in Fig. 2. This plot is a 'consensus tree' derived from the best-fit trees yielded by the Bayesian analysis. It includes branches (groupings) that occur in 70 percent of more of the tree samples, in other words showing those that are most likely to be correct. The numbers alongside each branch point (node) show the percentage of trees in the sample that included that branch. Most of the main divisions in the tree appear consistently in the sample (90 percent agreement or better), indicating that there are relatively few conflicting signals in the data.

measure captures the degree to which characteristics are retained from generation to generation, as we would expect if they are indeed related by descent. The RI can range (in principle) between 0 (no tree-like character) and 1 (wholly tree-like, characteristics passed on with 100 percent fidelity). The RI for our dataset of looms is 0.68. In most cases, a RI of 0.5 or above indicates the presence of significant tree-like character in the data.⁷ A value of 0.68 suggests that a branching tree is a reasonably good representation of the way in which our group of looms have evolved, at least as a first approximation.

7.2.3 Rooting the tree

Phylogenetic trees, as calculated by the Bayesian method, are ‘unrooted’ networks in the first instance. To present the network as an evolutionary diagram we must identify the root (earliest form). For this purpose we have selected the oldest definitive archaeological remains of a loom, the Liangzhu culture loom. This is an uncontroversial choice: even in the absence of the evidence provided by the Liangzhu remains we would choose a similar body-tensioned loom as the root for the tree, since this is the simplest type of loom found in Asia, it is known from several archaeological contexts including the Liangzhu and Dian cultures, and its key features have been inherited by many of the more complex looms in this study (see Chapter 2).

In broad terms, the rooted tree in Fig. 2 includes the same divisions that are present in the NeighborNet plot. Unlike the NeighborNet plot however, it explicitly proposes a path for the development of all the looms.

The shape of the tree seems to be determined principally by the frame and structural features, which appear to be very stable within lineages. Patterning features (techniques and features used to produce patterns on textiles as opposed to groundweave) seem to be more variable and in most cases do not seem to be the defining features of loom lineages. This is understandable, since many patterning methods are not integral to the loom and can be applied at will by the weaver according to need. The exceptions to this rule are some of the more complex pattern recording systems that are integral parts of the mechanical structures of the looms, such as the more complex Daic looms and the Drawloom.

7.2.4 Reconstructing ancestral looms

A unique feature of phylogenetic analysis is that it permits us to reconstruct the likely characteristics of the ancestral looms from which today’s looms are descended. We have carried out this analysis

for the looms at A, B, C, D, E, F, G, G1 in Fig. 2. The resulting ancestral states are given in the table in Appendix 5. These are expressed as percentage probabilities that particular features (characters) were present at a given node. This technique, in effect, enables us to ‘look backwards in time’ and reconstruct earlier forms of these looms and their evolutionary path in some detail. This is summarised in Fig. 3, which is a schematic rendering of the evolutionary tree in Fig. 2.

A glance at the table of ancestral states shows that the reconstructions include a large and stable set of features, with around 20 features deducible for the oldest forms (A and B), more in the case of the later forms. This is further confirmation that the looms in this group, despite their apparent diversity, share a common origin and retain many features inherited from earlier times.

These ancestral forms provide us with a rigorous means of classifying present-day looms, according to the types that they are descended from. As with the NeighborNet plot, an important feature of this classification is that it emerges naturally from the analysis, rather than being imposed from the beginning. In the main it also corresponds with what we would expect intuitively, with the addition of some novel insights.

In the remainder of this chapter we will use these results to construct a detailed narrative for the development of Asian looms, and to account for their geographical distribution. Finally, we will examine what our analysis can tell us about the evolution of one particularly important loom: the Chinese Drawloom.

The ancestral form for all Asian looms is a foot-braced body-tensioned (backstrap) loom at node A, reconstructed in Fig. 4. This loom had a warp beam that was braced against the feet, a cloth beam in two halves that acted as a clamp, with forked ends for holding the waist strap. The loom possessed a shed stick (for opening the natural shed) and a simple heddle (for opening the countershed), and the weaver used a flat wooden ‘sword’ for widening shed openings and beating-in the weft. Weft was wound around a stick for insertion. The warp was secured around a coil rod, which kept it in good order when the loom was rolled up after use. Both the warp and the woven cloth were continuous and circular.

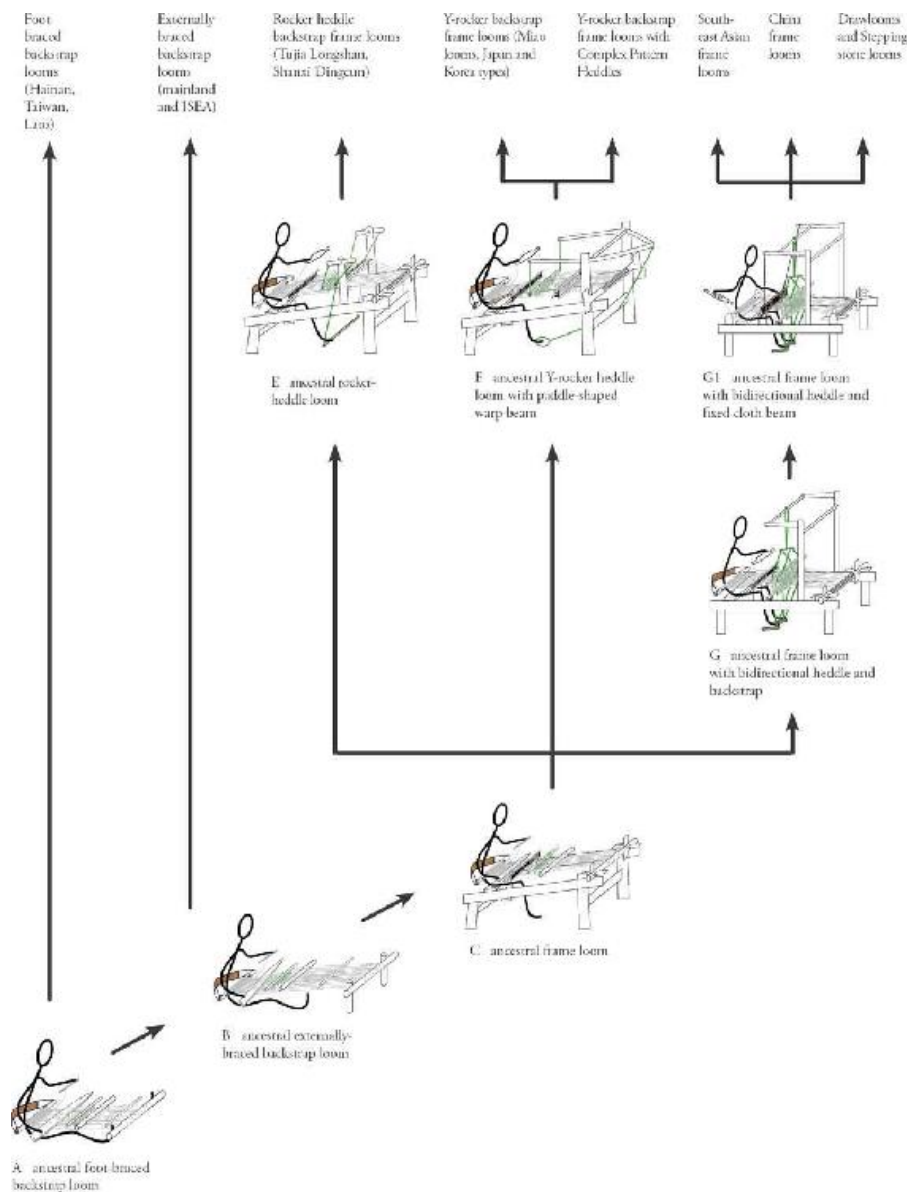


Fig. 3 Schematic version of the phylogenetic tree in Fig. 2, showing in how looms with frames evolved from simpler types. Forms A, B, C etc. correspond to the nodes (looms) with the same labels in Fig. 2.

7.3 Loom evolution: a narrative

7.3.1 Earliest looms: foot-braced body-tensioned types (type A)

This loom (Fig. 4) is essentially indistinguishable from foot-braced backstrap looms that are still used in a few of the more remote parts of Asia: in Hainan (Li weavers, Chapter 5), Taiwan (Austronesian aboriginal weavers), by Katu weavers in Laos and some Naga weavers in the Himalayan foothills. As described in Chapter 2, there are also several archaeological remains in bronze of this type of loom from Yunnan province, attributed to the Dian Kingdom.⁸

7.3.2 Externally-braced body-tensioned looms (types B and B1)

The first major development from the foot-braced type was the externally braced body-tensioned loom (Fig. 5). This loom represents a modification in which the warp beam is fixed to an external support (such as a tree, the side of a house or two stakes in the ground), enabling a longer and wider cloth to be woven more conveniently.

In a further modification (node B1 in Fig. 2) the split cloth beam is replaced by a solid beam with a groove, into which a narrow stick fits that is used to trap the warp.

The externally-braced body-tensioned loom is the most widely distributed type in Asia today. It is present from the far western regions of the Himalayas, to Japan in the east, Mongolia in the north, upland regions of SEA to the south, as well as much of ISEA (discussed in the next section). In China it is used in upland areas in Yunnan, by Jingpo, B'lang, Dulong and Lahu weavers, as well as related groups living in Myanmar. It is also the main loom for nomadic groups in Tibet (a 'trestle' frame loom with two foot treadles is used in urban areas in Tibet). The externally braced form of this loom seems to have replaced the older foot-braced version in most parts of the Asian mainland, with the exception of a few remnant groups, as noted.

7.3.3 Austronesian weaving traditions

Weaving is an important part of many Austronesian-speaking cultures distributed throughout ISEA, and these skills were probably transmitted along with language and other facets of Austronesian culture as part of the primary dispersal of Austronesian speaking

peoples. Reconstructions show that key weaving-related terms were present in the earliest versions of Austronesian languages⁹ including terms for ‘loom’ and ‘weaver’s sword’, supporting this view.

The externally-braced form of the backstrap loom is the type used by most Austronesian speakers in ISEA today (Fig. 6), particularly in the eastern archipelago, and our analysis shows that this is the ancestral form for ISEA. Our results also imply that this tradition probably came directly from the Asian mainland, rather than from Taiwan, where the older foot-braced loom is the main type.¹⁰ The weaving traditions of Taiwan also lack the warp ikat technique that is a critical part of many Austronesian weaving traditions.¹¹

There is a considerable body of research, founded on linguistic and genetic data, that points to Taiwan as the origin of the Austronesian cultural diaspora.¹² In the case of weaving however, positing that Austronesian traditions originated on Taiwan cannot readily explain the distribution of loom types today. If we are to suppose that Austronesian weaving originated on Taiwan then the new type of loom with external bracing and a novel decorative technique (warp ikat) must have been developed by Austronesian migrants soon after leaving Taiwan. Alternatively, we would need to assume a two-step process that involved the wide dissemination of the foot-braced form of the loom, followed by its complete replacement by the externally-braced form in ISEA at a later date, but not in its supposed homeland. Neither of these seem very likely.¹³ A simpler hypothesis, and the one that we prefer, is that ISEA looms (and weaving) originated from somewhere on the Southeast coast of what is now China, probably amongst the ancestors of Austronesian-speaking groups who have long-since vanished. Their distant relatives on the mainland continue to use externally-braced back-tensioned looms to this day. These looms and techniques spread relatively rapidly into ‘virgin territory’ in ISEA, but had little impact on older traditions that were entrenched in Taiwan and Hainan.

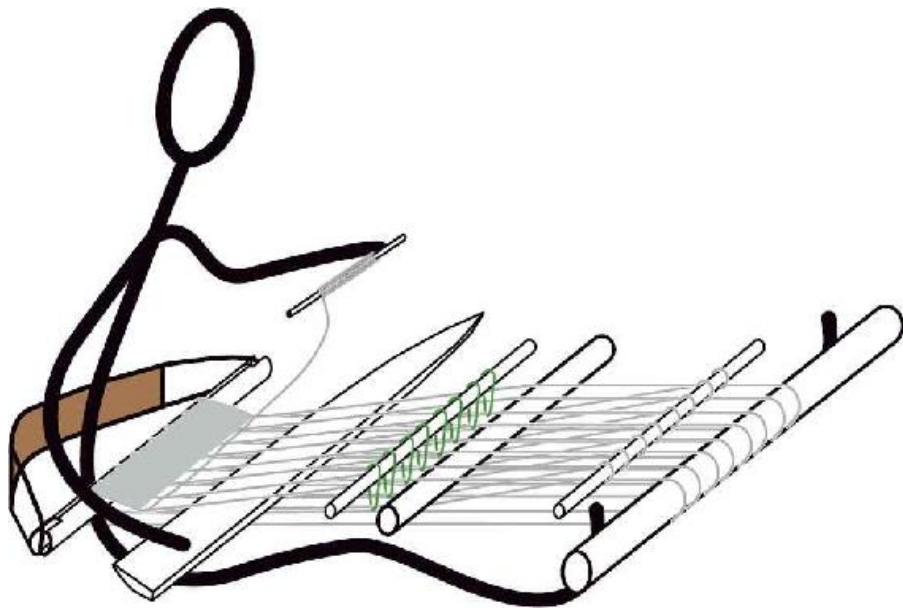


Fig. 4 Reconstruction of the ancestor of all Asian looms, based on ancestral state analysis of the loom at node A in Fig. 2. The loom is a foot-braced backstrap loom, including a cloth beam split in two halves for clamping the warp, a sword-beater, a simple spool for inserting the weft, a heddle (shown in green), shed stick and coil rod (nearest the warp beam).

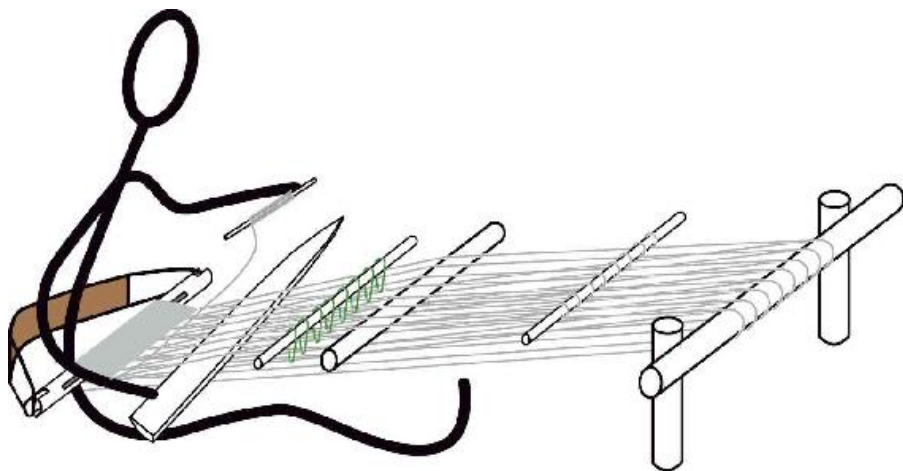


Fig. 5 Reconstruction of the ancestral loom at node B in Fig. 2. This is similar to A, but has a warp beam that is braced by attaching it to an external support, such as two stakes in the ground or the wall of a house. This is the ancestral form for most looms in ISEA.



Fig. 6 A weaver in Nggela, Flores, using an externally-braced backstrap loom to weave ikat cloth. Looms of a similar type are used by Austronesian language speakers across much of Indonesia and the Philippines, especially the more remote islands.

7.3.4 The development of looms with frames

The common ancestor of all the Asian mainland looms with a rigid frame lies at Node C in Figs. 2 and 3. The form of this revolutionary loom is reconstructed in Fig. 7. We do not know exactly when this development occurred, but based on archaeological remains (such as the Jing'an tomb remains discussed in Chapter 2) we know that it took place more than 2500 years ago. The loom that is still in use today with the greatest number of similarities is the Miao loom from the Huishui area (Chapter 4).

The ancestral loom with a frame consists, in essence, of an externally-braced body-tensioned loom transposed to an elevated wooden frame. Instead of sitting on the ground, the weaver sits on a bench. The warp beam is wedged behind two uprights at one end of the frame, with spokes that check its rotation. The cloth beam is supported by the weaver and tensioned with a backstrap. The shed opening arrangements (single-directional heddle and shed-stick) also remain the same as in earlier looms. There are two other significant developments:

1. The warp, instead of being circular, is wound around the warp beam when weaving begins. It is gradually unrolled during weaving and the finished cloth is wound around the cloth beam. This development enables a longer warp to be used.

2. A reed is present. This controls warp yarn spacing and fabric width, and helps to prevent the warp from tangling. The reed is not used as a beater in this early loom: beating-in is still done using a wooden ‘sword’, used with the reed pushed away from the weaver, towards the heddle.

These innovations form part of all subsequent frame looms in China and beyond. They are crucial developments since the rigid frame around the loom was subsequently elaborated and built-upon in many different ways. Many of these looms continued to retain key features (such as body-tensioning) from earlier looms, however.

As mentioned, the closest present-day analogue of this ancestral loom is the loom used by Miao people in Huishui. The Huishui loom is not precisely the same however; it incorporates several features that are probably later developments, such as a unique pair of unidirectional heddles that are pulled in opposite directions.¹⁴

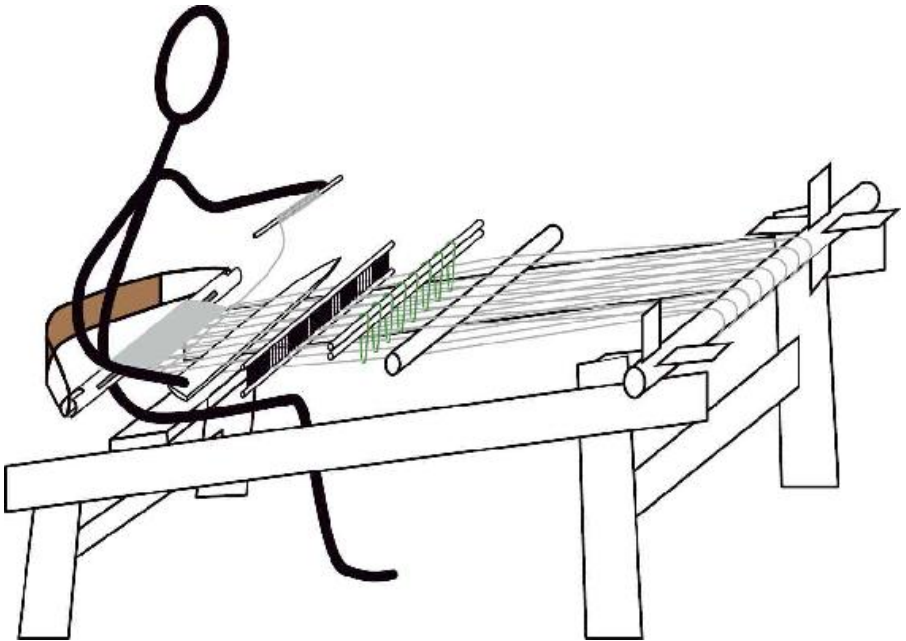


Fig. 7 Reconstruction of the ancestral Asian frame loom, at node C. This loom adds several critical elements that are still found in present-day frame looms: a rigid frame incorporating the warp beam, a raised seat for the weaver and a reed.

The next significant development corresponds to the loom at node D. This loom is similar to the one at C, but adds a foot-operated treadle for raising the heddle, which frees the hands for weft insertion. The weaver's sword used with all the previous looms is replaced by a beater-shuttle that combines the functions of the sword and the shuttle into one implement.

After this point, the development of the frame loom diverged, taking three different paths, represented by nodes E, F and G. These correspond to looms with different versions of the foot-operated treadle. From a structural/engineering point of view, the developments that these looms represent would not have been possible (or would have been much more difficult to implement) in the absence of a rigid frame. We will consider each of these types in turn.

7.3.5 Short rocker-heddle looms (type E)

The four extant looms that share this basic mechanism are the Zhuang loom from Napo, the Tujia loom from Longshan, the Han Chinese loom from Dingcun in Shanxi province and the ‘Yao’ loom from Jianghua.¹⁵ These are all body-tensioned looms. The Napo and Dingcun looms have a device for suspending the reed, on two bent sticks, while the reed has no suspension system in the Longshan loom. Another loom from Japan, already mentioned in Chapter 2,¹⁶ also appears to belong to this group. The Miao loom from Zhaoxing also shares some characteristics.

Relatively few looms of this type are still in use today, though they seem to have been more important in the past. The surviving looms of this type have diverse features, but they all share the same distinctive mechanism for raising the heddle, which is present in the ancestral loom for this group (Fig. 8). This consists of a pair of short rocking bars, suspended above the warp on pillars. The rocking bars support the heddle on the side nearest to the weaver, and are joined by cords to a foot treadle on the other side. Depressing the treadle raises the heddle, opening a countershed for weft insertion. The cord is also joined to a warp-depression bar, which presses down on the top of the warp as the heddle is raised, restraining the upper layer of warp and preventing it from being pulled upwards as the lower layer is raised.

The Han dynasty Type 1 loom, discussed in Chapter 2 on the basis of archaeological remains, almost certainly shares the same heddle raising mechanism as this group, since most of the tomb engravings and the Musée Guimet model (see illustrations and discussion in Chapter 2, Section 2.12) share the characteristic support pillars for the heddle mechanism, positioned near the centre of the warp. The Type 1 loom has a cloth beam fixed to the frame rather than attached to a waist strap around the weaver’s body, however. For this reason, the Miao loom from Zhaoxing, which also has a fixed cloth beam, is probably the closest present-day relative of the Han Type 1 loom, despite some differences in frame configuration.

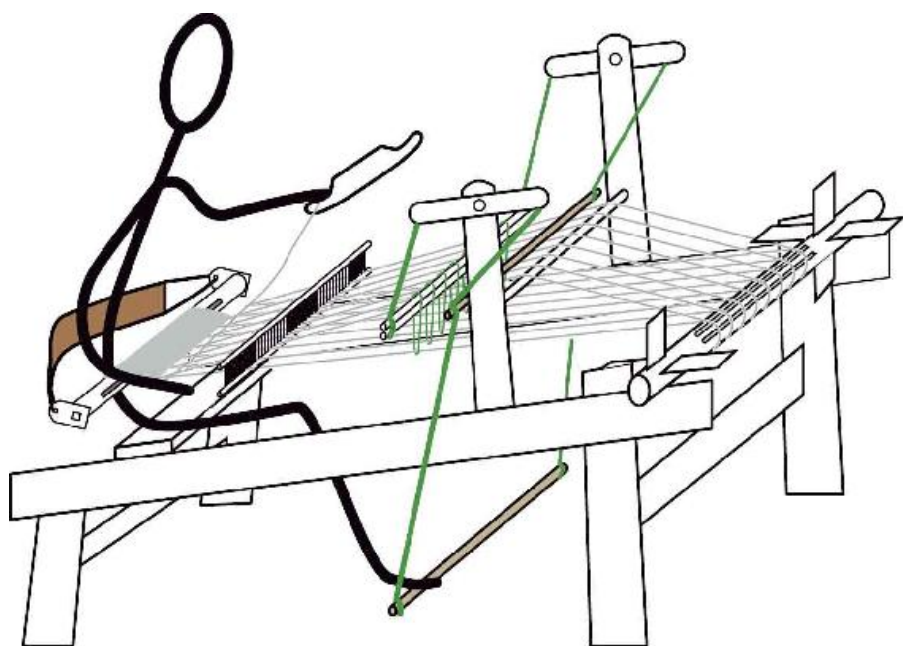


Fig. 8 Reconstruction of the ancestral loom at node E in Fig. 2. This is the ancestral form for looms which have heddles suspended from characteristic short-rockers, often carved to look like nodding birds or fish, which are worked via a foot-treadle. There are relatively few looms of this type today, but this seems to have been an important domestic loom in the past. One variant of this loom appears in some Han dynasty tomb engravings (Han loom Type 1 in our classification).

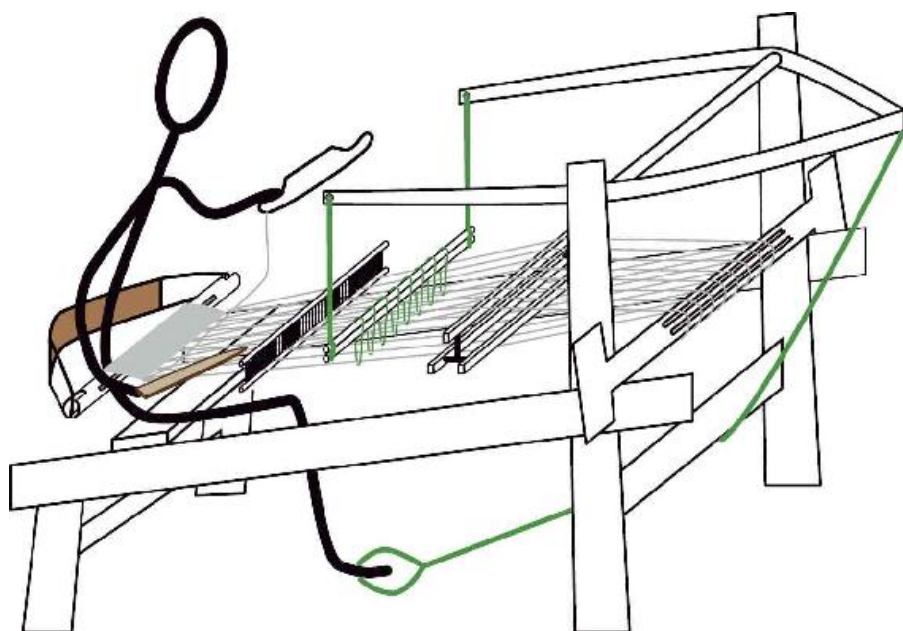


Fig. 9 The ancestral loom at node F in Fig. 2. This is the ancestral loom for looms with heddles suspended from long Y-shaped or U-shaped rockers, attached to foot-treadles.

Other characteristic features include a warp beam with large paddle-shaped ends and an enlarged shed-stick in the form of a triangular or I-shaped frame.

The development from body-tensioned cloth beam to fixed cloth beam seems to have occurred in several different loom lineages at various times. However it is only in the context of looms with linked bidirectional heddles (discussed below) that this development became truly successful.

Despite the fact that these looms are relatively uncommon today, their distribution over a wide area and several ethnic groups suggests a very long history. They are mainly associated with domestic Han Chinese weaving, or with minorities who have been in close contact with the Han for a long period.

7.3.6 Y-rocker heddle looms (type F)

The looms in this group share an ancestral form at node F in Figs. 2 and 3. The appearance of this loom is reconstructed in Fig. 9. The common characteristic of all the looms in this group is a heddle suspended by a long Y-shaped or U-shaped rocking mechanism, linked to a foot ‘treadle’ consisting of a loop of cord around the weaver’s foot.

The warp beam of these looms is also distinctive; it is a heavy wooden bar with flat paddle-shaped extensions at the ends. This enables the beam to be wedged behind a pair of uprights in the frame. It can be easily removed by the weaver to dismantle the loom and roll up the weaving at the end of the day. Looms of this type are still found amongst several groups in Guizhou, including Miao and Daic peoples. The simplest looms are found amongst Miao groups, while Daic versions are often modified with complex patterning heddles. Some (but not all) of the Miao looms use the Tubes-and-Layers pattern-helper system described in previous chapters. We know from at least one tomb engraving and several sets of wooden loom parts found in tombs in south and Southwest China that this loom was present in China during the Han dynasty. It corresponds to the Han Type 2 loom, known from archaeological remains discussed in Chapter 2.

Some present-day versions of this loom, such as the Miao looms from Panxian and Shimen in Guizhou, have the characteristic upright part of the frame and heddle lifting mechanism, but lack a horizontal frame and seat, the weaver sitting on a stool instead. Before conducting our analysis we guessed that the Panxian form of this loom might represent a simpler, ancestral type. In fact the analysis suggests that the Panxian variant is the result of the loss of the horizontal part of the loom frame that was present in the ancestral form. We believe

that this may be an adaptation to make the loom more compact and less resource-intensive to make. In Panxian and Shimen, and other places where we have seen of looms of this type, amongst Yao and Miao (Hmong) people in Vietnam and northern Thailand, the looms were used in confined spaces inside the weaver's home. These areas are also resource-poor upland regions with subsistence economies.

Although the largest concentration of looms of this type (and the greatest variety) is found in Guizhou, similar looms are also found in southern China, Japan and Korea. Yoshimoto [2013] lists seven variant forms in Japan. In China and Korea they are sometimes associated with the weaving of hemp and ramie (nettle fibre). As with the Type E looms we can assume that these looms were more common in the past.

腰機圖

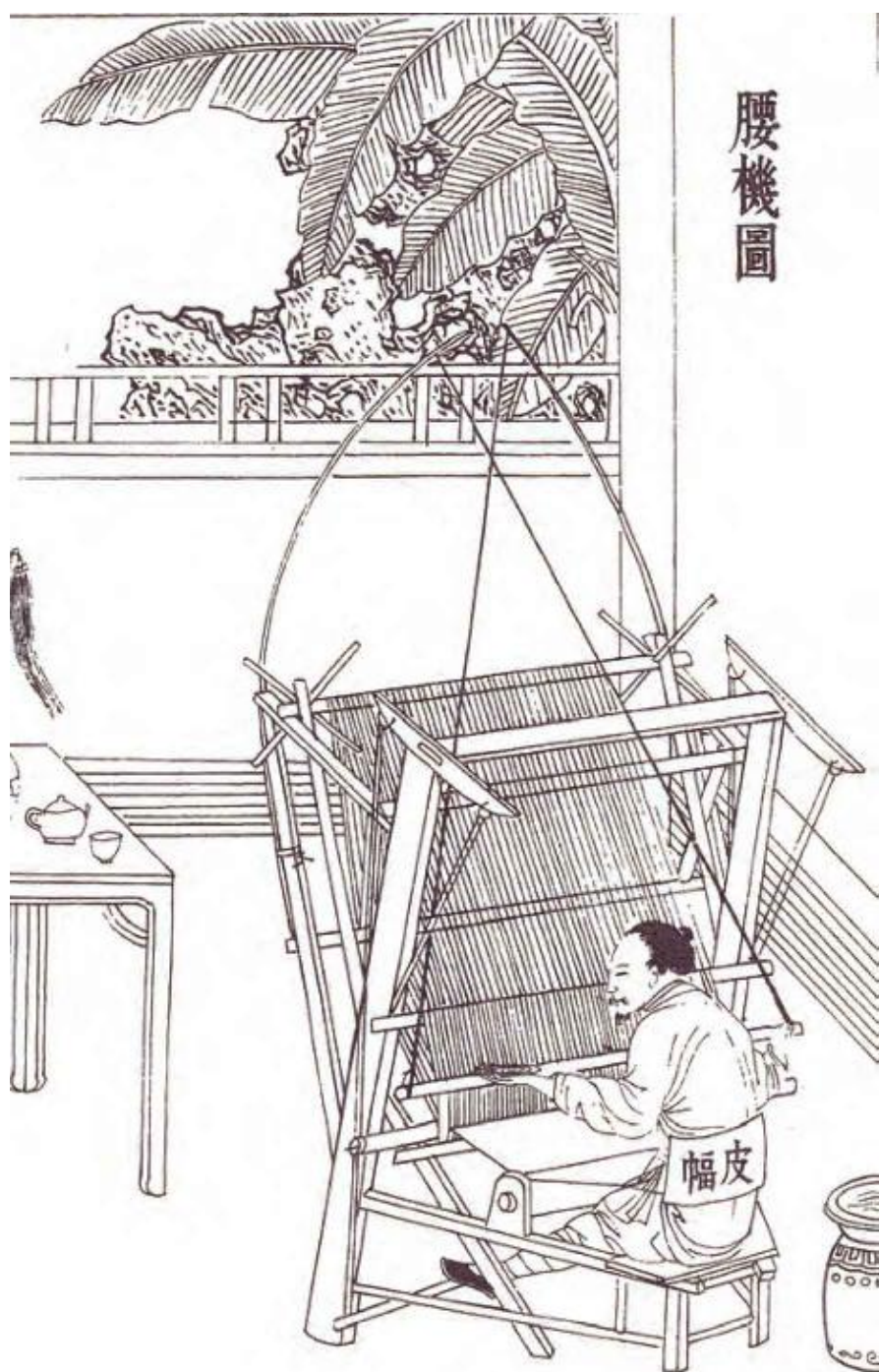


Fig. 10 Woodblock print of a Han Chinese loom with a short rocker heddle, from the *Exploitation of the Works of Nature* 天工開物 by Song Yingxing 宋应星, first published in 1637. This loom is similar to the ones that are still used in a few households in northern China (such as the Shanxi Dingcun loom). In addition to the characteristic

short rocker system supporting the heddle, it has a reed that is suspended overhead from two pliable rods. Compare Fig. 8.

Most of the Type F looms are body-tensioned, with a backstrap. However one interesting member of this group, the Miao loom from Zhaoxing, has a fixed cloth beam. Since the weaver cannot adjust the tension in the warp, an additional feature is necessary to facilitate the opening of the natural shed: the shed stick is attached to a second foot treadle so that it can be pulled downwards. The foot treadles are used in a see-saw fashion: one side is depressed to raise the heddle (countershed), then the other side is depressed to re-open the natural shed. The Zhaoxing loom can be regarded as one of a number of experiments in moving away from the restrictions imposed by the body-tensioned format, though this particular solution is rarely found today.

7.3.7 Looms with bidirectional heddles (type G)

All of the looms in this diverse group share the same ground-weave shed-opening mechanism, consisting of a pair of heddles that can pull in two directions (bidirectional). With the exception of the Buyi loom from the Libo area, which represents an intermediate form, all the other looms have a fixed cloth beam and are not body-tensioned. The heddles are (in most cases) connected to a pair of wooden foot-treadles, which alternately open shed and countershed in a see-saw fashion (Figs. 11 and 12). Paired bidirectional heddles represent a major advance in loom technology. This mechanism can open wide sheds with great rapidity, for insertion of the ground weft. It eliminates the need for a shed-stick to restore the natural shed, as well as eliminating the need for warp-tension adjustment during weaving via body-tensioning. The weaver's hands are thus left free for weft insertion.

In spite of the bidirectional heddles that all the looms in this group share, the frame configurations are diverse, encompassing cantilever frame designs from Southwest China (and elsewhere), box-frame designs from mainland Southeast Asia, the Malay peninsula and Sumatra and trestle-type looms from the Himalayas. Unlike the other loom groups that we have considered, these looms may not represent a homogeneous group with common ancestry. It is more likely that this group of looms is composed of several groups with separate evolutionary paths, which have converged after adopting the bidirectional heddle. Since this feature renders body-tensioning unnecessary, the switch to a fixed cloth beam may be a consequence of adopting the bidirectional heddle, rather than an event that preceded it.

As far as the history of the Type G looms is concerned, the Buyi loom from Libo has an interesting mix of features that illustrates how this type of loom may have evolved, and helps to define the features of a proposed ancestral loom at node G (Fig. 11). The Libo loom is the sole example in this group that is body-tensioned: it seems to represent an adoption of the bidirectional heddle with minimal changes to other aspects of the loom. The implementation of the bidirectional heddle is somewhat half-hearted, with a very simple rocker joining the two heddles that does not allow the kind of movement that is normally seen in bidirectional heddle looms. The advantages of the bidirectional heddle in freeing the hands for weft insertion have been realized, but the Buyi weavers in Libo have not taken the step of moving to a fixed cloth beam, and their loom retains many of the features of earlier body-tensioned types.

The ancestral loom at G resembles the present-day Libo loom in many respects, but it lacks the complex patterning heddle of the Libo loom. The pair of bidirectional heddles is shown as being suspended from a cantilever in Fig. 11, though the precise form of the suspension system is unclear in this ancestral loom. This is an indication that G may represent an amalgamation of several ancestral forms rather than a single loom.

The ancestral form at G1 (Fig. 12) adds some critical advances. Body tensioning has been replaced by a cloth beam that is fixed in the frame. The reed is suspended overhead, and it has a substantial frame around it, so that it can be used for beating-in the weft. The shuttle has evolved from a heavy beater-shuttle to a lightweight boatshaped type, since it is no longer employed for beating-in the weft. Once freed from the requirement of body-tensioning, the warp can be made wider (in principle), although this advantage was explored to a greater extent in some lineages (such as the Southeast Asian box-frame loom and the Chinese Drawlooms) than in others (such as Himalayan looms).

7.3.8 The Coil Rod and the Reed

These devices both originated as warp-organizers and spacers. Our reconstructions show that the coil rod is the older of the two: it consists of a rod around which the warp is wound and secured, and it keeps the warp in order. This is useful for a weaver who will roll her work up at the end of the day. The coil rod is still widely used on backstrap looms that have circular warps (types A, B and B1). Textiles woven on this type of loom tend to be warp-faced: the warp is more prominent than the weft in the finished textile. These looms are often associated with the techniques of warp ikat, warp patterning and weft-

wrapping, sometimes with the addition of beads and shells, all of which (like the looms themselves) appear to be amongst the oldest textile related techniques in Asia.

The reed, which is essentially a 'comb' through which individual warp yarns (or pairs of yarns) pass, serves the same warp-ordering function as the coil rod that it replaces, but also acts as a warp spacer. This allows the weaving of textiles with balanced weaves and weftfaced weaves in which the weft is more prominent. This increases the range of possibilities for using decorative wefts, an advantage that has been exploited in spectacular fashion by some Miao and Daic weavers.

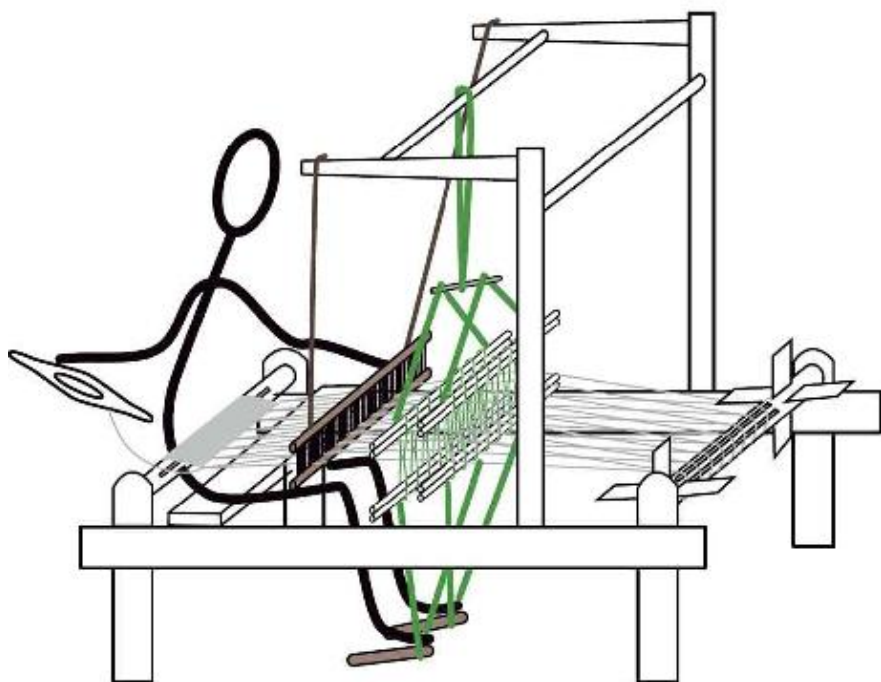
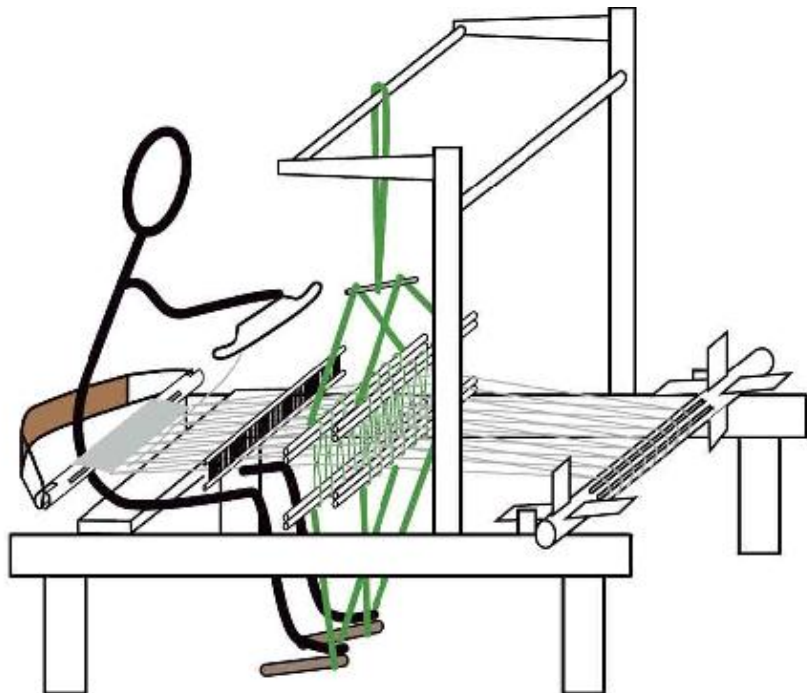


Fig. 11 (Above) and Fig. 12 (below), reconstructions of the ancestral looms at nodes G and G1 (respectively) in Fig. 2. These are ancestral forms for frame looms with a pair of 'shafts' worked by foot treadles that open shed and countershed for making plain weave. The loom at node G retains the body-tensioning of earlier types. In the next stage in the

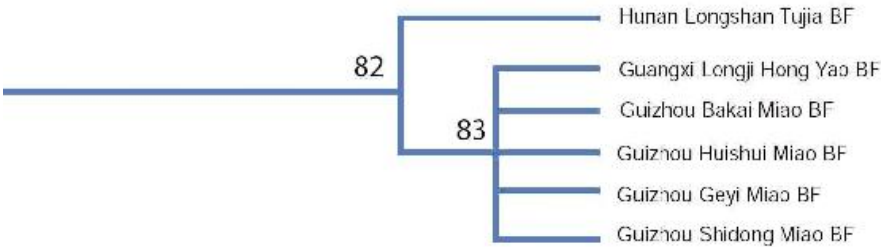
development of this loom at G1 the cloth beam is fixed to the frame rather than attached to the weaver's body. The reed is also suspended overhead and begins to be used to beat-in the weft.

The reed does not seem to have been used as a beater when it made its first appearance. Many weavers who use reeds employ a separate beater, either a hardwood sword or a combined beater-shuttle, as is the case with most of the looms in Southwest China. As noted, looms with bidirectional heddles suspended overhead allowed the reed to be suspended as well, at which point the reed took on the function of both beater and spacer (type G looms).

7.3.9 Weft insertion techniques

As discussed, changes in weft insertion method are closely linked to other aspects of the loom, particularly the way in which the weft is beaten-in. The simplest and oldest system, employed on the earliest backstrap looms, is weft insertion using yarn wound around a stick, after which it is beaten-in with a hardwood sword. By the time of the development of ancestral frame looms E, F and G the weft insertion is accomplished using a beater-shuttle, which combines the functions of the shuttle and the wooden sword. The sword is correspondingly eliminated, since it is no longer required as a beater, but smaller pickup sticks (pointed sticks for selecting individual warps) of similar shape are still used in some looms.

Tubes-and-Layers patterning systems



Complex Pattern Heddle systems

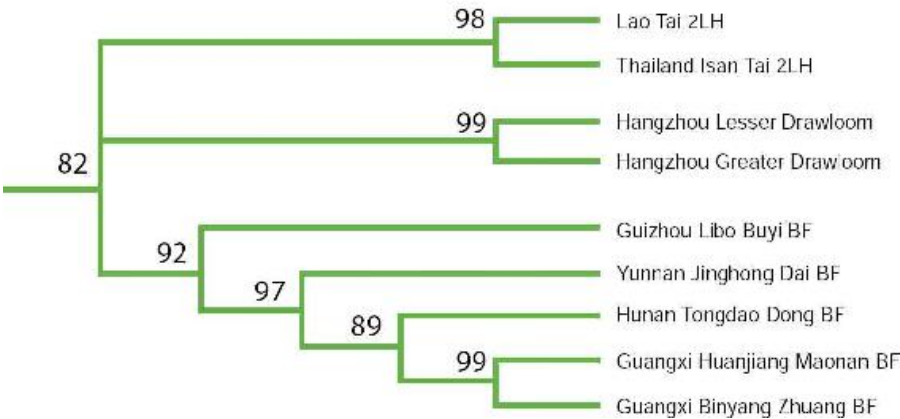


Fig. 13 Lineages (phylogenetic trees) for the two main patterning systems used in mainland Asia: the Tubes-and-Layers system (Miao looms), and Complex Pattern Heddles (Daic looms and Chinese Drawlooms). Consensus trees showing nodes which appear in 70% or more of the trees produced by the Bayesian analysis. Figures behind the nodes indicate percentage support for each node and its associated branches.

The final stage (to date) in the evolution of the weft insertion seems to have occurred at the same time as the reed began to be used as a beater. At this point the shuttle changes to a lightweight boat-shaped shuttle that is no longer used to beat-in the weft.

Despite the evolutionary relationships between these systems, all three systems are still found in use today in different looms, in different regions.

7.3.10 Analysis of Patterning Systems

As described in Chapter 2, Asian looms use a great variety of systems for producing patterning on textiles. To investigate the relationships between these systems we analysed the patterning systems separately

from the other features of the looms, using the Bayesian technique as described above. The ‘tree’ that is produced by patterning systems alone is, in large part, rake-like with few identifiable features. This suggests that patterning systems (especially the simpler kinds) have been freely copied between looms. There are two exceptions to this, both of which are patterning systems of a relatively complex type: the Tubes-and-Layers patterning systems of Miao-Yao looms and the Complex Pattern Heddles of the Daic looms and Drawlooms. The subtrees for these systems are shown in Fig. 13. We will consider each of these systems in turn.

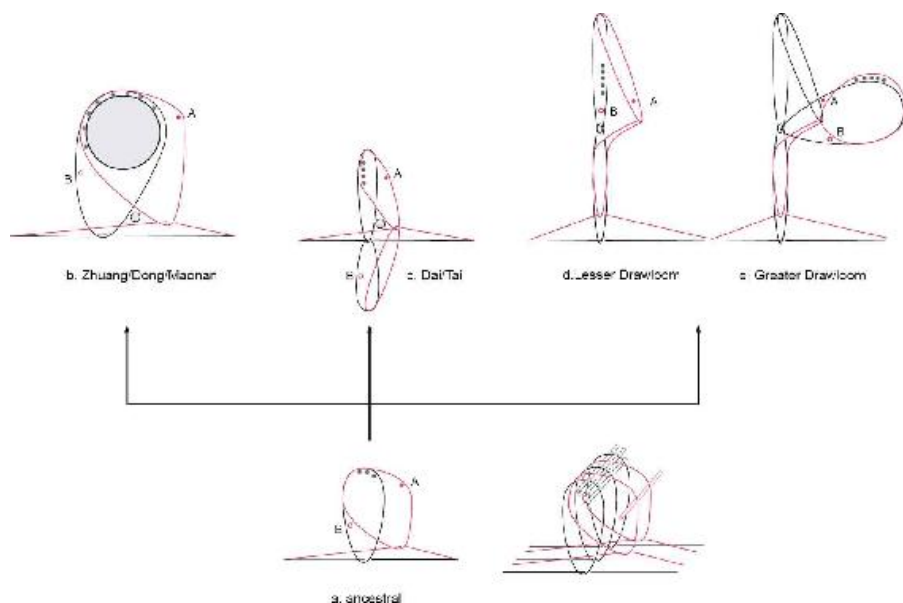


Fig. 14 Schematic diagram showing the development of various versions of the Complex Pattern Heddle. These are pattern-recording systems in which many pattern rods (or cords) are embedded in a single heddle, the rods being used in sequence to select and raise sets of warps for pattern weft insertion. Active components are shown in red, passive components in black. In all the heddles of this type the active pattern rod (shown as solid red) is used to raise a group of warps, then removed and replaced at the back of the set (shown as hollow red).

Tubes-and-Layers (‘TL’ in Fig. 2)

Discussed in the context of Miao-Yao looms in Chapter 4, this system is not a ‘complete’ pattern-recording system, it merely facilitates the selection of part of the warp. The major part of the pattern selection work is done by the weaver using a pointed stick or hook, following a guide (such as a fragment of old textile or an embroidered guide), or from memory.

The Tubes-and-Layers system is found in body-tensioned frame looms, particularly amongst Miao weavers but also Tujia weavers

from Longshan (Chapter 4, Sections 4.6–4.16, Chapter 6, Section 6.2). It is found on three different types of frame loom, the simple backstrap frame loom from Huishui, the Tujia rocker-heddle frame loom from Longshan, and several Y-rocker frame looms used by Miao weavers. The relative simplicity of this system may have facilitated its spread amongst different ethnic groups, though it does not seem to have spread beyond Southwest China.

Complex Pattern Heddles ('PH' in Fig. 2)

These are true pattern recording systems, found on some Daic looms (Chapter 5) and the Chinese Drawloom (discussed below). They record the full sequence of shed openings for a given motif, so that the weaver's contribution is limited to selection of weft colour and number of wefts. All of these systems share a common approach: patterning is done using a single compound heddle, in which a sequence of warp lifts is recorded using sticks or cords. Although the various forms of this system are quite diverse, they all work on the same principle. A stick or cord in the pattern heddle is brought forward by the weaver (or drawboy/girl), pulling up a set of warps. This stick or cord is then removed and re-inserted at the back of the set, while the shed is still open, preserving the pattern.

A proposed evolutionary sequence for these systems is illustrated schematically in Fig. 14, based on analyses of ancestral states and comparison with modern looms. The ancestral form is a simple bundle of sticks embedded in a pattern heddle connected directly to the warp (Fig. 14 diagram a). The present-day system that most closely resembles this ancestral form is that found on the Buyi loom from Libo (Fig. 15). As far as we know, no simpler versions of this compound heddle exist today on the Asian mainland, but Batak weavers from the Lake Toba area of Sumatra sometimes use heddles with two or three sticks in them, each of which pulls up a different set of warps.¹⁷



Fig. 15 Buyi loom from the Libo area and its Complex Pattern Heddle (the arrangement of light-coloured threads above the dark-coloured warp). The pattern sticks are held loosely in a cradle attached to the wooden cantilever that rises over the loom. More sophisticated versions of this system use various means to keep the pattern sticks in order, held around drums or baskets, or in a long web as in the Chinese Drawlooms, allowing more sticks to be used and more complex patterns to be woven.

The Libo heddle probably developed as the result of experimentation with a heddle of this kind with two or more sticks in it. Batak weavers, who use a simple backstrap loom, do not seem to have taken the next step of making more complex patterns by using more sticks,

and removing and re-inserting them in a defined sequence. This is probably because a necessary pre-condition to this development is the presence of a frame that extends over the warp, since the bundle of pattern sticks becomes unmanageable unless it can be suspended over the warp in some way.

Out of the ancestral form, this basic pattern-recording idea developed in several different directions. One group of looms (Fig. 14 diagram b) preserves the basic form of the Buyi Libo system, but adds a rotating cylinder in the centre of the heddle that allows a larger group of sticks to be used, and helps to keep the sticks in sequence. These are the 'pig basket' and related looms, versions of which are used by Zhuang weavers from Binyang, Dong weavers from Tongdao, and Maonan weavers from Huanjiang.¹⁸

Another line of development (Fig. 14 diagram c) adds a mirror-image heddle below the warp, so that sticks are transferred from above the warp to below after use (or vice versa). Like the 'pig-basket' systems this 'Venetian Blind' system enables the use of a larger number of sticks or cords and the execution of correspondingly more complex patterns. This system is mainly found amongst Dai weavers in Yunnan and Tai weavers in regions to the west. It probably diverged from the pig-basket version at a relatively early date, as did the looms used by these weavers, which show significant differences compared with the pig-basket group.

A third line of development of these systems leads to the patterning systems in Chinese Drawlooms (Fig. 14 diagrams d and e). These looms are discussed in the final section of this chapter.

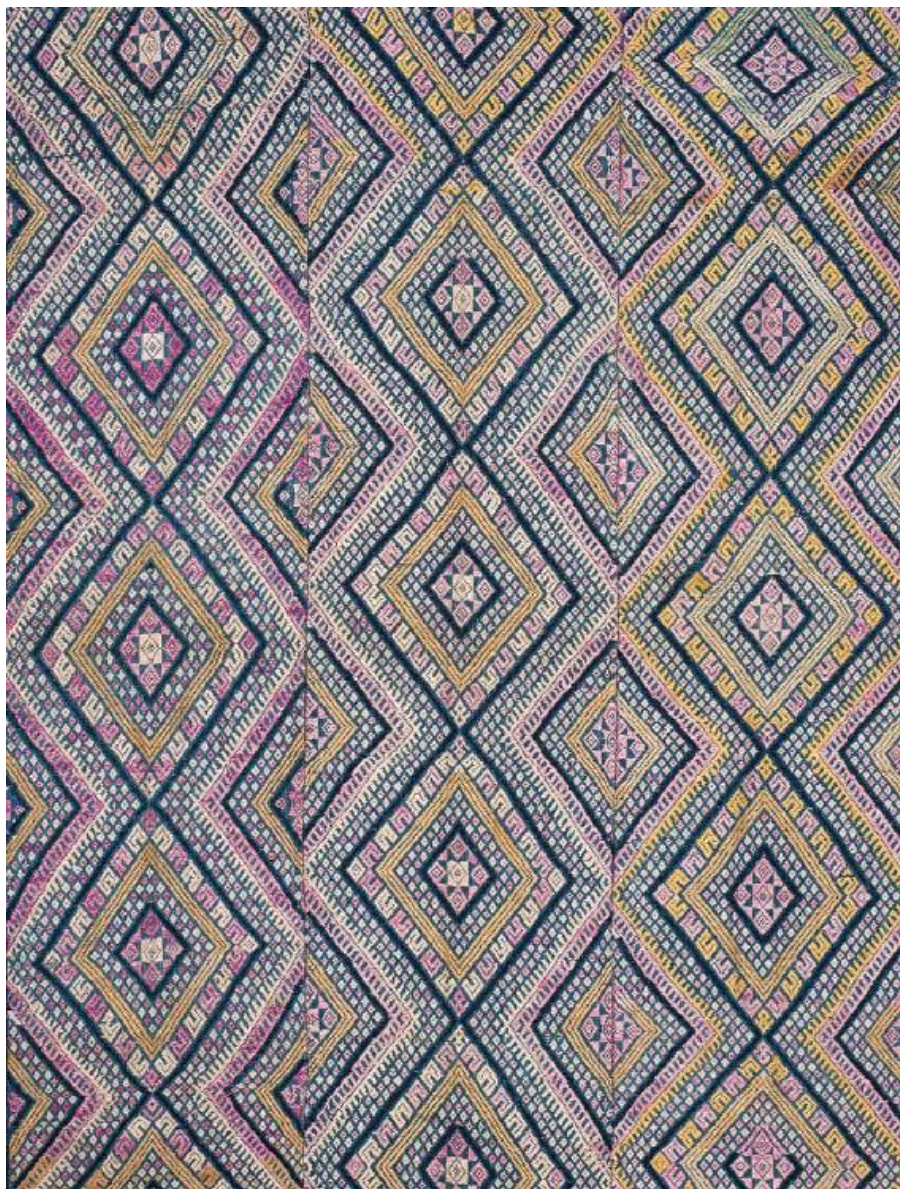


Fig. 16 Bed covering made by a Buyi weaver from Qiannan area, silk supplementary weft on cotton groundweave. Woven in three strips joined together. This is an representative example of a textile woven on a loom equipped with a Complex Pattern Heddle with many pattern rods. The loom design reproduces the sequence of pattern wefts precisely, but the weaver is at liberty to vary the colours of the wefts that she inserts. Private collection.

7.4 Loom evolution: a geographical model

We will now combine the foregoing outline of loom development with the geographic locations of the various types of loom, supplementing this with perspectives on Asian prehistory (reviewed in Chapter 2), to build a geographical model for how Asian loom types arose and dispersed. There are gaps and areas of uncertainty, particularly in the early distributions of looms, but we can nevertheless identify and link together the main events to form a coherent narrative. This is summarised in the maps in Fig. 18a-d.

The first Asian loom was a foot-braced body-tensioned loom (Fig. 17). It was developed somewhere on the Asian mainland, but we do not know exactly where or when. From archaeological evidence we know that it was used by Neolithic farming cultures in central and Southeast China.

The impetus for the expansion of this loom and its associated weaving cultures was probably the spread of farming peoples cultivating rice and millet, including the precursors of Sino-Tibetan, Austro-Asiatic and Daic language speakers.¹⁹ This association is likely because the foot-braced form of this loom, though relatively uncommon today, is present in some widely scattered regions amongst speakers of languages from all of these groups.

These farming cultures gradually spread throughout the Asian mainland, from the Himalayan foothills in the west to the coastal region of present-day China in the east. The foot-braced form of this loom may have made some limited inroads into ISEA, but does not appear to have spread widely in this region (Fig. 18a).

The externally braced form of this loom developed on the Asian mainland at a later time, but before the main Austronesian diaspora, which began around 4200 years ago (Fig. 18b). This is the version of the body-tensioned loom that was carried by Austronesian migrants from the Asian mainland to ISEA, along with warp ikat and other weaving technologies. It also spread to much of mainland Asia. It replaced the older foot-braced form, which eventually became confined to a few of the more remote and marginal regions, including Hainan, Taiwan and upland areas on the Vietnam-Lao border and

parts of the Himalayas (Fig. 18c).

The next critical development was the addition of a rigid frame around the body-tensioned loom, including a bench for the weaver, giving rise to a new class of back-tensioned looms with frames. Because this type of loom is now very widespread on the Asian mainland (from the Chinese border region in the west to Japan in the east) and because it is used by several different linguistic groups (Miao-Yao, Daic, Sino-Tibetan and others), we believe that this development occurred at a relatively early date. Frame looms were certainly present 2500 years ago, based on the date of the oldest archaeological remains for this type, discussed in Chapter 2. This type of loom eventually replaced the simpler forms of backstrap loom in central China and much of Southwest China, apart from some of the more remote upland areas (Fig. 18d). It did not spread into the archipelago until much later, and never gained a foothold in the eastern part of ISEA.

In independent developments, U-shaped wooden frames were also added to body-tensioned looms in some parts of Indonesia (including Bali, Lombok and Sumatra), and weavers in Sulawesi and Bhutan developed frames with vertical extensions that allowed the use of a longer warp. In all of these looms the weaver remained seated on the ground however, as distinct from mainland looms with elevated seats.

The frame loom opened up new avenues of development, exploiting the frame as a support for new devices. The first important innovation was the suspended-heddle, linked to a foot treadle. This freed the weaver's hands to concentrate on weft insertion. This development appears to have occurred independently at least three times in Asia. One version (on the Asian mainland) gave rise to the Han Type 1 loom and related types, with the heddle attached to a short rocker over the warp. Another version (also on the Asian mainland) gave rise to looms with long Y-shaped rockers. A different system was invented independently by Indonesian weavers in Lombok and surrounding regions using ground-level looms, who sometimes suspend their heddles from a cord hung from a roof beam, using a counterweight.

As with the development of the back-tensioned frame loom, suspended-heddle variants also seem to have appeared relatively early, since they are widely distributed geographically today and are present across several language families.

The next developments, chronologically, also occurred amongst the users of back-tensioned frame looms. These were the development of the Tubes-and-Layers pattern-helping system, and the Complex Pattern Heddle system. We believe that these occurred later than the development of the looms themselves because they are confined to

certain linguistic groups: the Tubes-and-Layers system is used mainly by Miao-Yao and Tujia, while Complex Pattern Heddles are characteristic of Daic weaving. The existence of diverse versions of the Daic Complex Pattern Heddle in different regions suggests that the earliest versions of this system were developed by Daic people before they moved away from their 'homeland' in what is now Southwest China. Subsequent developments then continued in separate weaving lineages amongst Daic weavers in Guangxi (Maonan, Zhuang, Buyi), Yunnan (Dai) and Lao-Thailand-Vietnam (Tai).

As noted, the majority of Asian frame looms continued to be of the body-tensioned type, and this type is still found in many rural areas today. In some areas weavers experimented with fixing the cloth beam into the loom frame: this development occurred independently at least twice, represented by the Han dynasty Type 1 loom and its present-day relatives such as the loom used by Miao people in Zhaoxing, and by the much larger (and ultimately more successful) group of looms that use linked bidirectional heddles in combination with a warp beam and a cloth beam that are fixed to a rigid frame.

The majority of looms up to this point had employed the same type of system for opening the shed and countershed (for making plain ground-weave) as the simplest type of back-tensioned loom. This consists of a single heddle that pulls in one direction only (upwards) to open the countershed, and a shed stick to restore the natural shed. The critical development that made possible the next stage in loom evolution was the invention of a bidirectional heddle that could pull a set of warps up or down. Using a pair of these heddles linked to treadles, wide shed and countershed openings could be produced easily and quickly using the feet alone, without the need for body-tensioning. The origin of this innovation is unclear, and given its worldwide distribution today across many different loom types it is not certain in which loom lineage it first appeared, or where. Nor can we be certain, based on the study of Asian looms alone, whether it was developed within Asia or introduced from outside. Its full potential was realized gradually, as some incomplete implementations (such as the loom used by Buyi weavers in the Libo area) show.

The remaining history of loom development in Asia is a story of the gradual replacement of older loom types by frame looms with fixed cloth beams and bidirectional heddles, a process that is still continuing today.

In ISEA (the Philippines, Indonesia and some outlying islands) weaving was initially introduced by Austronesian migrants, bringing with them the externally-braced body-tensioned loom and its associated weaving practices (such as warp ikat). This is still the

dominant loom in regions to the east (roughly speaking, east of a north-south dividing line that runs through Lombok and Bali), where the weaving cultures that exist today are directly descended from these early migrants. The situation to the west of this line (Peninsular Malaysia, Sumatra, Java) is more complex: in these regions there is a mix of older backstrap-loom traditions, mingled with more complex frame looms and patterning traditions that spread at a later time via the Malaysian peninsula from Southeast Asia, including the bidirectional heddle frame looms already mentioned.



Fig. 17. Li weaver in Hainan, using a foot-braced back-tensioned loom. This is the oldest type of loom in Asia. Despite the development of more sophisticated forms, foot-braced looms have persisted in a few more remote regions, including Hainan, upland regions in Taiwan and the border between Laos and Vietnam.

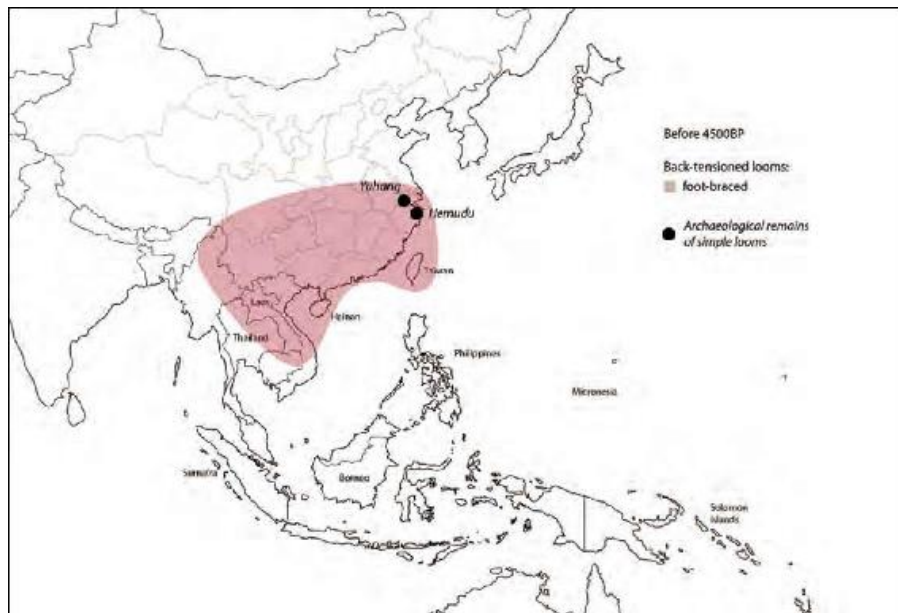


Fig. 18a Foot-braced backstrap looms, originating in the east Asian mainland, spread widely on the Asian mainland, concurrent with the spread of early farming cultures.

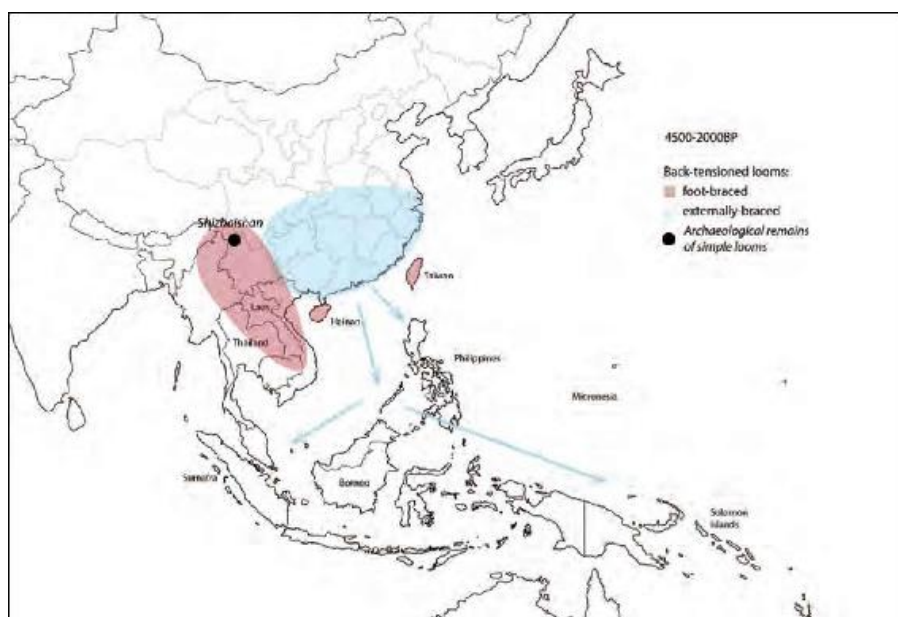


Fig. 18b The externally-braced form of the backstrap loom (blue colour) develops on the Asian mainland, partially replacing the foot-braced form (red), leaving the latter confined to outlying regions.

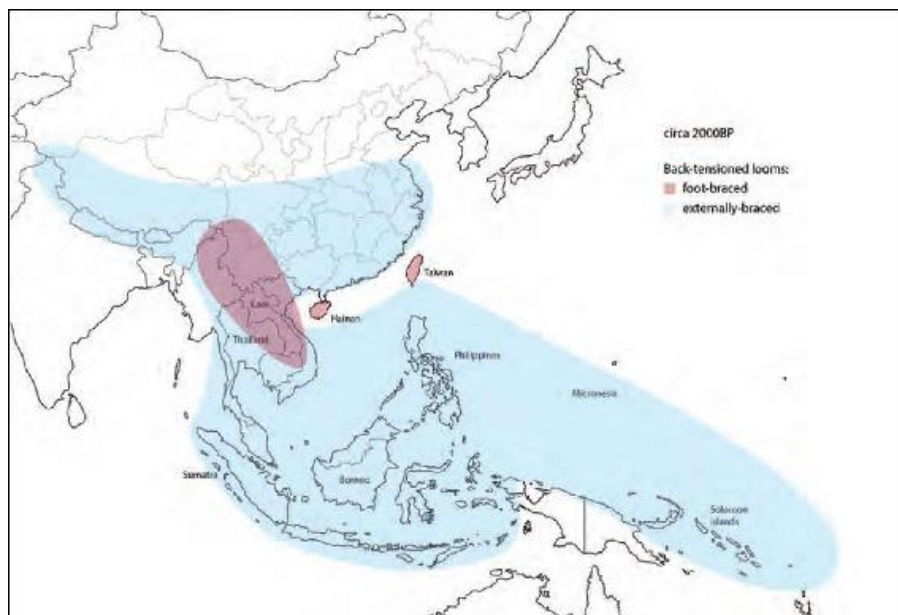


Fig. 18c The externally-braced form of the backstrap loom spreads to ISEA from the Asian mainland, concurrent with the expansion of Austronesian cultures in the region.

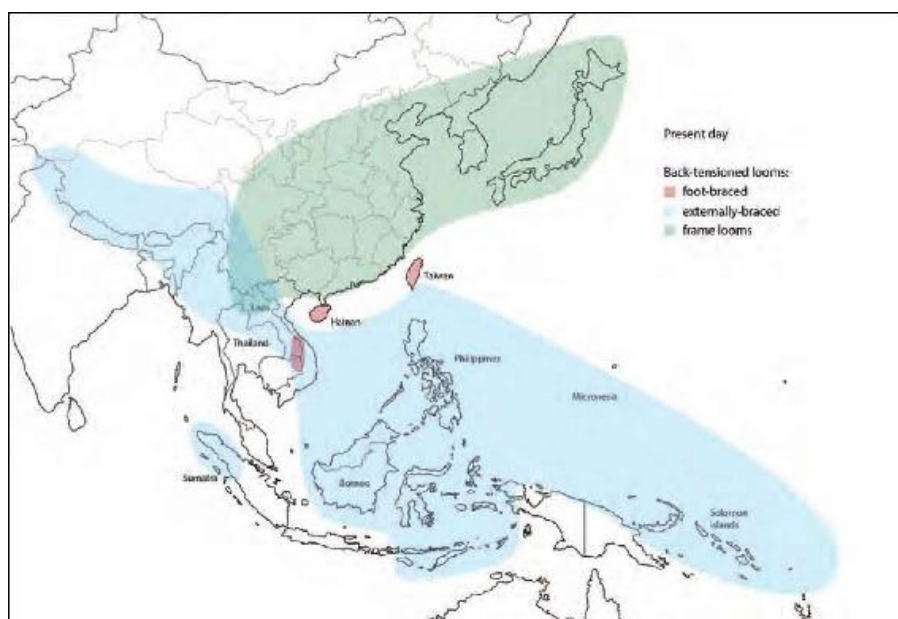


Fig. 18d Frame looms with rocker heddles develop from earlier backstrap types and spread east and west in the Asian mainland. Other, unrelated types of rigid frame develop in ISEA (not shown). This final map represents the probable distribution of frame looms until the arrival of looms with bidirectional heddles, which subsequently gained a wide distribution on the Asian mainland and some parts of ISEA (not shown).

7.5 The Chinese Drawloom

7.5.1 Commercial silk-weaving workshops

The complex looms in silk weaving workshops were the product of a different kind of development process compared with the looms discussed so far. Their evolution was driven by the requirements of commercial weaving, as discussed in Chapter 2, as distinct from domestic production. These workshops, which produced textiles destined for the Chinese elite, both in the provinces and in the capital, were characterized by the production of luxurious textiles in large quantities and long rolls, using standardized designs, some of which were subject to sumptuary regulations. In many cases these workshops also experienced financial pressures and time constraints.

In response to these pressures, two technologies that developed separately were combined to make a new type of loom. One technology was the Complex Pattern Heddle system developed by Daic weavers. The other was the multi-treadle, multi-shaft ground-weave system found in the ‘Stepping Stone’ loom (Chapter 2). Both of these seem to have originated in Southwest China, and it is likely that the early development of drawlooms also took place in this region. Combining these features enabled the development of a loom that was able to reproduce multicolour designs with large repeats on a variety of groundweave structures (tabby, twill and satin weaves).

The Chinese Drawloom is in fact one of the first mechanical devices able to reproduce intricate designs in colour, surpassing woodblock printing of the same period in this respect. The products of these looms, multicoloured silks with exquisite designs, were disseminated throughout Asia in the form of gifts and commerce. As a result, they came to be of central importance for the diffusion of Chinese designs and motifs throughout Asia.²⁰ The motifs of Tibetan chests, Vietnamese court robes and Balinese wood carving (to cite a few examples) all reflect the influence of Chinese silks produced on Drawlooms.

7.5.2 The Drawloom patterning system

The Drawloom pattern heddle shares several defining features with Daic Complex Pattern Heddles. At its heart it is composed of a set of cords, defining warp lifts, embedded in a heddle connected to the

warps. The key difference is that the mesh with the pattern cords is not attached directly to the warps (as in the Daic looms), there is an extra set of long loops that transmit the lifts from the heddle to the warps. This modification has some important consequences. Firstly, the patterning system can be raised some distance above the warp, so that larger pattern heddles can be used and the system can be worked by an assistant. Secondly, each leash can be attached to several warps, using the extra linkage and the space between the patterning system and the warp. This allows design repeats to be made across the cloth (in the weft direction) as well as along the warp.



Fig. 19 Silk brocade fragment with a floral squares-and-roundels design (detail). Around 1500 CE. Silk supplementary weft on a green silk tabby-weave ground. This fragment, which was preserved as a ceremonial runner in a Tibetan temple, is 32cm wide: the full

selvage to selvage width was probably twice this width. It is a typical example of the type of textile that could be produced in quantity using the Drawloom system.

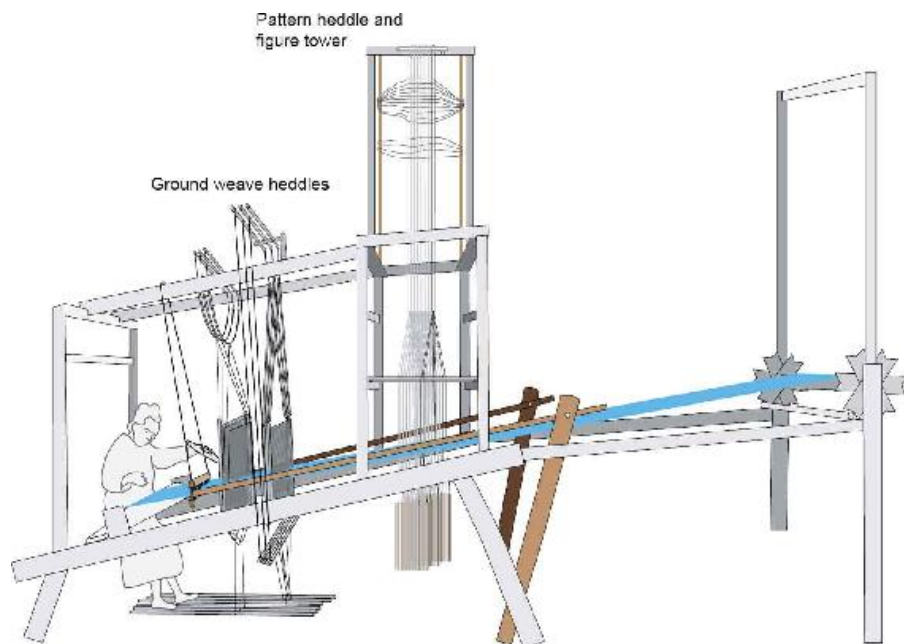


Fig. 20 Schematic drawing of the Lesser Drawloom. Warps are raised and lowered for ground-weaves by the treadles and large heddles operated by the weaver at the left. Warps are raised for pattern weft insertion by a separate system (central part) operated by an assistant (not shown). This consists of a tower holding a set of leashes attached to warps. Cords embedded in the leashes (top) record the sequence of warp lifts for patterning.

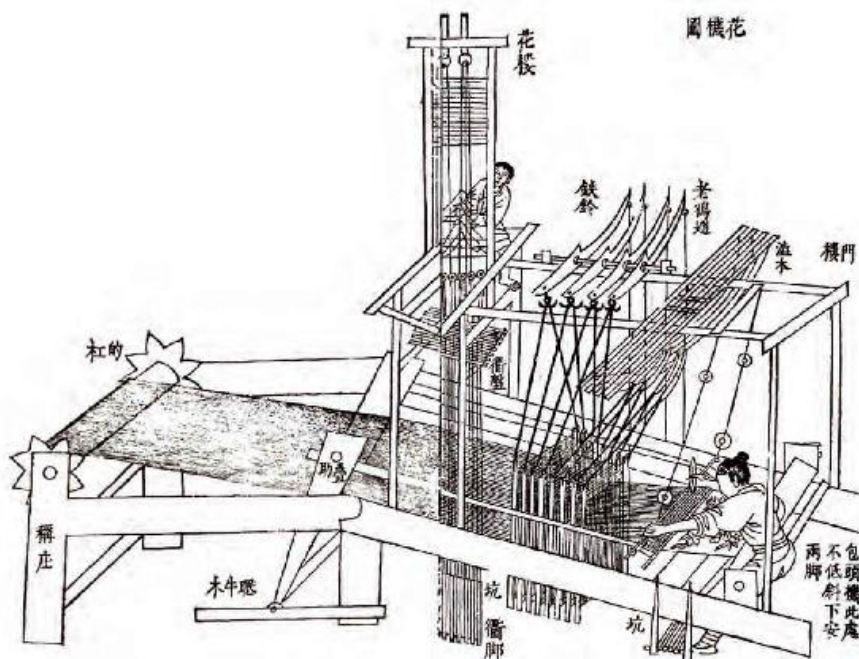


Fig. 21 Woodblock illustration of the Lesser Drawloom, from 'Exploitation of the Works of Nature' by Song Yingsheng (see Fig. 10).

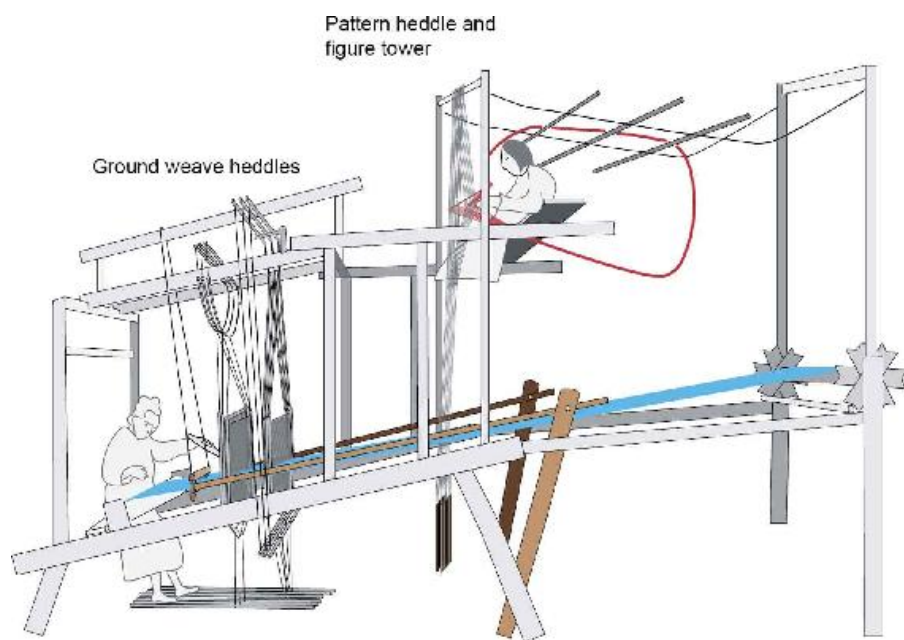


Fig. 22 Schematic drawing of the Greater Drawloom. The arrangement for ground-weave heddles is similar to that of the Lesser Drawloom. The pattern tower, worked by an assistant (drawperson) on a platform, is rotated through 90 degrees relative to the Lesser Drawloom version, and an extra set of connecting loops is added to the patterning system, allowing a much longer pattern web to be mounted on the loom for producing more

complex designs.

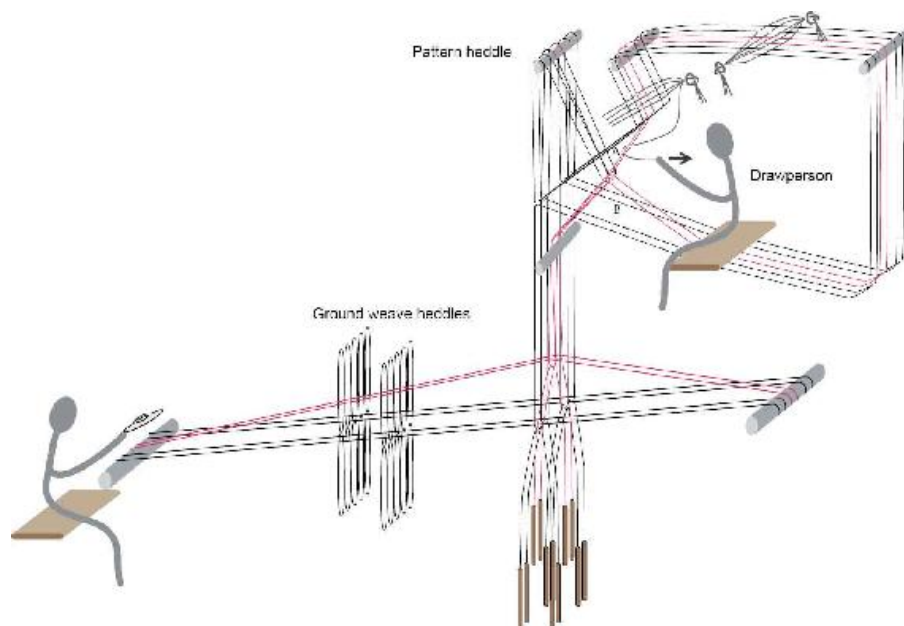


Fig. 23 Schematic drawing of the Complex pattern Heddle operation in the Greater Drawloom. A long web of loops and pattern cords is connected to the vertical leashes in the pattern tower, which are connected, in turn, to individual warp yarns. The drawperson selects the next pattern cord in sequence and pulls it towards herself, raising the active leashes and warps (shown in red) for a pattern weft insertion. At the same time she removes the cord from the opening at A and replaces it at the opening B, below the working area. In this way the sequence of cords is maintained for future use. When a set of pattern cords (tied in bunches) has been used the drawperson pulls a new set towards herself (overhead), moving the old set down and away at the same time. A complete rotation of the pattern loop and its cords produces one pattern repeat in the finished textile, which may be very long (several meters).



Fig. 24 Silk brocade fragment with dragon, flaming jewel and rocks and waves. Around 1500AD. Silk supplementary weft on a blue satin weave ground. This fragment is 63cm wide: the original selvedge to selvedge width of the textile and the total size of the design repeat was considerably greater than this. Textiles of this complexity were woven on the Greater Drawloom. Private collection.

There are two versions of the pattern system. The simpler version is found on the Lesser Drawloom²¹ (LDL, Figs. 20 and 21), which is probably the older of the two systems and which seems to have been in-use by the Song dynasty.

In the LDL the pattern cords (equivalent to the pattern sticks in Daic looms) are embedded in vertical loops held in the patterning tower (shown in schematic form in Fig. 20). To operate the pattern system, the assistant pulls forward one of the pattern cords, pulling up all the leashes that pass over the cord, together with the warps that are connected to the leashes. This allows the weaver to insert a pattern weft underneath the warps that have been raised. Before releasing the leashes, the assistant removes the pattern cord and replaces lower down in the web, preserving the set of leashes (and hence the design) for future use. As mentioned, each LDL leash is usually attached to several warps, enabling motifs to be repeated along the weft direction.

In the Greater Drawloom²² (GDL, Fig. 22) the pattern sequence is not embedded in the figure tower, as in the LDL, but is suspended next to the tower in a long loop. This allows the use of a much longer patterning sequence, which is limited in complexity only by the skill and imagination of the artisans who constructed them, with correspondingly longer repeats in the warp direction and larger designs. This is shown schematically in Figs. 22 and 23. The basic operation is the same as for the LDL: each pattern cord, when pulled up by the drawperson, raises a set of warps. The pattern cord is removed and re-inserted below the active heddle cords as this is done. As with the LDL, each leash can be attached to multiple warps to make repeats of the design across the warp. However in the case of the GDL the number of repeats is usually fewer, and the design may even encompass the whole width of the warp, making full use of the massive amount of pattern information that can be encoded in the long pattern loop.

The removal of a pattern cord or stick, and its re-insertion is the critical feature that characterizes all Complex Pattern Heddle systems, from the simplest (Buyi loom from the Libo region) to the most complex (GDL). It ensures that the sequence of warp lifts (i.e. the pattern) is preserved for future use as weaving progresses. This essential feature distinguishes pattern heddle systems from pattern sticks placed directly in the warp. In the latter case, the pattern is lost when the sticks are employed, since they must be removed completely to allow successive sticks to be used.

7.5.3 Drawloom ground-weave heddles

As mentioned in Chapter 2, the ground weave heddles of both the

Greater and Lesser Drawlooms are basically identical to the heddles of the Sichuan Stepping Stone Loom. The system consists of two kinds of heddles: those that pull upwards (raise warps) and those that pull downwards (lower warps). The upward-pulling heddles are linked to a row of rocker bars on top of the loom, attached via cords to the treadles below. The attachment for the downward-pulling heddles is different: they are connected to bamboo bows above the warp and to treadles below. When the treadles are depressed the bows are put under tension; when they are released the bows spring back up and restore the heddle to the neutral position. A simple version of this system is found on some Buyi looms from the Xingyi region (Chapter 5), consisting of strip of bamboo laid along the top of the loom. As mentioned, this system probably represents the prototype for this kind of bow-tensioned heddle.

In the Stepping Stone loom there may be many of these heddles, and they are used for patterning as well as for producing the ground weave. In the Drawloom the number is fewer, typically three to six of each kind, and they are mainly used for producing twill and satin effects. This kind of heddle is well suited for the Drawloom: since each heddle only pulls in one direction, the warp can move up or down in the wide loop above or below the heddle, rather than in a narrow ‘eye’ in the centre that restricts its movement, typically found in bidirectional heddles. This allows the warp lifts of the patterning system to ‘pass through’ the heddles, making them available to the weaver working at the cloth beam.

7.5.4 The Drawloom: a summary

We can now appreciate the Chinese Drawloom as a blend of two distinct technologies: compound heddle patterning technology derived from Daic looms, with ground-weave heddles borrowed from looms similar to the Stepping Stone loom. Both originated in Southwest China, and the two versions of the Drawloom presumably had their genesis in the same region. There may have been intermediate forms in the development of these complex looms, but only the LDL and GDL remain today.

Though these looms seems to have originated in the Southwest, their unique advantages were widely recognised. The technology was eventually disseminated to silk weaving workshops around China, probably by weavers and workshop masters who moved as a result of imperial edict.

Some writers have speculated that the Chinese Drawloom was the result of the introduction of technology from outside of the region, citing weft-patterning methods in general and the Drawloom

mechanism specifically. As we have shown however, the patterning devices of the two versions of the Drawloom and its distinctive ground weave heddles can be traced to local precursors. One innovation that is not present in Daic patterning systems is the attachment of multiple warps to a single leash: this feature might be an introduction from the West. It might also have been invented independently by Chinese weavers. Few other aspects of Drawloom technology point to introductions from outside. The details of the mechanisms of Indian and Persian Drawlooms differ substantially, both in ground-weave and patterning systems.

Most or all of the innovations that led to the Chinese Drawloom therefore seem to have had their origin within the Southwest of China, and it is likely that the key steps that led to the development of the Drawloom also took place in this region.



Fig. 25 Detail of a wall hanging woven by Dai (Tai) people in Xishuangbanna, Yunnan. Composed of two panels joined together, decorated with supplementary weft designs in cotton, including animals (Nagas and elephants) and floral motifs. The weavings of many Daic groups, such as this one, exploit the possibilities of Complex Pattern Heddles to produce repeating designs of great beauty and intricacy. Private collection.

1 Looms used globally have been reviewed by Broudy [1979]. The body tensioned looms in the Americas may be related to Asian body-tensioned looms, see discussions by Bird [1979] and Buckley [forthcoming].

2 Summaries of the ‘state of the art’ can be found in publications by Boyd et al

[1997] Whiten et al [2007], Shennan [2009], Mesoudi [2011], Ellen et al [2013].

3 Gray et al [2000].

4 Huson [2006].

5 Huelsenbeck [2002].

6 Farris [1989].

7 Collard et al [2006].

8 A single instance of the use a foot-braced loom by Austronesian speaking Sarmi people on the north coast of New Guinea has also been noted [Gosling 1928, quoted by Yoshimoto 1989 and Howard and Sanggenaffa 1999]. The Sarmi people appear to have woven palm fibre cloth using both foot-braced and externally-braced versions of the body-tensioned loom, and which of these represents the ‘original’ Sarmi weaving method is not clear. A well-known 6th century bronze model of a weaver, found in Flores and now in National Gallery of Australia [Maxwell 2006], is also of this type, though whether this sculpture was made in ISEA or the Asian mainland is unknown.

9 Blust [1995], Buckley [forthcoming].

10 The Yami people situated on an island off the south coast of Taiwan are an exception: they use an externally-braced loom and speak a language closely related to those spoken in the Philippines.

11 The tubeskirt, a basic part of the Austronesian clothing repertoire, is also virtually absent in Taiwan.

12 Summarised by Bellwood [1985, 2005, 2007].

13 Nor are the weaving traditions of the Li people of Hainan candidates for the proximate ancestors of Austronesian weaving. Hainan weavers practice warp ikat decoration, but their looms are of the foot-braced variety.

14 The Huishui tradition is one of the most conservative of a group of traditions that is characterized by conservatism. As described in Chapter 4, the brocade weaving on this loom is done mainly ‘by eye’, and is extremely slow, the weaver producing about one centimetre of cloth per day. The looms and techniques of other nearby weaving groups (such as the Maonan and the Buyi) are much faster, by a factor of at least 20, but the Huishui weavers show no inclination to modify their technique, nor do they appear to have done so for a very long time.

15 ‘Yao’ weavers in Jianghua are ethnically and linguistically Han, but its members have re-classified themselves as Yao for economic reasons, as noted in Chapter 1.

16 Yoshimoto [2013 L-143].

17 Niessen [2009, 505–514].

18 Li and co-workers [2013] also examined the Zhuang ‘bamboo cage’ loom and concluded: ‘from the historical perspective of looms in ancient China, the bamboo-cage loom fills in an important evolution gap of looms from the back-strap loom to the drawloom’, a conclusion with which we concur.

19 See Bellwood [2013] for a review of the current understanding.

20 Buckley [2005].

21 *Xiao hualou tihuaji* 小花楼提花机.

22 *Da hualou tihuaji* 大花楼提花机.

Appendix 1

A note on the interpretation of the *Rhapsody on Women Weavers*

‘The business of interpretation is obviously very complicated’

William Empson, *Some versions of Pastoral*, 1935.

Wang Yi (89–158 CE), author of the *Rhapsody*, was a poet, bibliophile and historian of Chu Culture, who was born in the town of Yicheng, which is now in Hunan province. The original text of his poem, which seems to have been inspired by a visit to a weaving workshop of the time, is as follows:

胜复回转，剋象乾形。
大匡淡泊，拟则川平。
光为日月，盖取昭明。
三轴列布，上法台星。
两骥齐首，俨若将征。
方员绮错，极妙穷奇。
虫禽品兽，物有其宜。
兔耳踞伏，若安若危。
猛犬相守，甯身匿蹄。
高楼双峙，下临清池。
游鱼銜饵，灑灑其陂。
鹿卢并起，纤缴俱垂。
宛若星图，屈伸推移，
一往一来，匪劳匪疲。

This text is important because it is so widely quoted, and because it has been used as the basis for reconstructing the loom(s) of the Han dynasty. Extracting technical information from what is essentially a work of poetry involves some difficulties however, which we illustrate with some examples, concluding with a more conservative interpretation.

Past interpretations

Much discussion has centred on the tenth verse of the *Rhapsody*: 高楼双峙, 下临清池. This includes the term *gaolou* 高楼, which literally means ‘high tower’. This has been interpreted in different ways by different experts. Zhao Feng [2005, 23] proposes that this is a description of a ‘bamboo basket’ patterning device 竹笼花本, similar to that used on the Zhuang loom in Binyang. Kuhn [1995] believes that this verse provides evidence for a drawloom. He provides a literal translation of the verse as follows:

‘High building, pair of high peaks, below a clear water pond. Fish swim about for bait, swallowing it.’

Which he then interprets as a description of a drawloom:

‘The high [figure] tower (*hualou* 花楼) [of the drawloom] with its double posts (*chongtian lizhu*) towers high, [and the coloured warp yarns] below [the tower resemble] a pond of clear water, [where] fishes swim about [darting] for bait and swallowing it.’

And goes on to explain:

‘The drawboy or drawgirl sits high above the warp yarns in the figure tower and pulls the strings which finally lift the warp yarns forming the pattern previously designed. The up-and-down movement of the harness cords with their attached weights resembles jumping fishes trying to catch and swallow bait.’

The ninth verse 猛犬相守, 窞身匿蹄 is translated literally by Kuhn as follows:

‘Fierce dogs are arranged in parallel, stretching their bodies, hiding their paws.’

To which he provides the following gloss:

‘[The two] fierce dogs [the two swing-arms of the reed, *shengyin yaojia* 箴引搖架] are arranged in parallel, [when] stretching their bodies, [they] hide their paws.’

Which Kuhn further explains as follows:

‘The swing-arms are arranged in parallel on both sides of the loom. The reed which looks like a beast’s big mouth with many teeth is attached to them. At the moment when the reed is pushed towards

the cloth-beam, the swing-frame pounces forward like an animal.’ The thirteenth verse 宛若星图, 屈伸推移 includes the term *xingtu* 星图, which literally means ‘map of the stars’. Zhao Feng [2005] suggests that this represents part of the ‘bamboo basket’ patterning device 竹笼花本 similar to that on the Zhuang loom in Binyang. Kuhn, however, does not give any interpretation of this term in his 1995 text.

At the end of his 1995 article Kuhn concludes:

‘Thus the rhapsody relates the three lights (*sanguang* 三光), sun, moon and stars, to the weaving girl star (*zhinü* 織女). This statement confirms the use of drawlooms in Hunan province, which is not very surprising taking into account that Hunan and Hubei were the provinces which yielded the most spectacular silk fabrics from the Warring States and the Western Han periods.’

Kuhn’s questionable interpretation has been widely cited, especially by Western authors, for example Vainker [2004, 49], referring to Kuhn’s work, writes: ‘Modern reconstructions have led to the conclusion that the Han examples must have been produced on a drawloom.’ Similarly Langford [2009, 86] writes: ‘This amazing loom was the subject of a poem Rhapsody on Women Weavers, by Wang Yi (177–217 CE). In the poem, Wang writes about the loom with a tower needing two people to operate it. This indicates the existence of a drawloom with a tower being used in the Han dynasty, a fact supported by Dieter Kuhn due to analysis of the weaves. Although the poem by Wang Yi contains metaphors, The Rhapsody on Woman Weavers definitely talks about the tower of the loom.’

As a result, the presence of a fully fledged drawloom in Han dynasty times is now widely understood as fact, despite being built on rather flimsy foundations.

Re-examining the Rhapsody

We believe that the *Rhapsody*, which is essentially a work of poetry by someone who was not a weaver, has been over-interpreted. Having examined many looms we are well aware of the difficulties of understanding how a given loom functions, even for the specialist. Too much has been built upon the tenth verse, in particular: ‘High building, pair of high peaks’ is not sufficient evidence to deduce the presence of the figure tower of a drawloom, since many other loom designs incorporate raised sections to accomodate patterning devices of various kinds.

Examining the text closely, what can be concluded with certainty about the loom employed? Despite the uncertainties, a few points do

stand out unambiguously:

- 1) The loom possessed a warp beam 胜
- 2) it had a 'large frame' 大匡
- 3) it had three 'axles' to 'keep the fabric in order' (三轴列布)
- 4) it was comparatively tall 高楼
- 5) the twelfth verse 鹿卢并起, 纤缴俱垂 suggests that the mechanism included threads or cords hanging vertically. This is likely to have corresponded to a patterning mechanism of some kind.

There is enough here to suggest that a large loom of some sophistication was employed, but not enough (in our view) to determine what kind. The poetry of the *Rhapsody* might equally well have been inspired by a loom of the 'bamboo basket' type (Zhao Feng's preference) or by a loom of the type recently excavated in Chengdu (see Chapter 2, Section 2.15) which was a large loom with shafts and a tower-like structure to support them, but which was definitely not a drawloom.

Conclusion

The existence of a drawloom in Han dynasty times is not an impossibility, but its existence cannot be deduced from the *Rhapsody*. As discussed in Chapter 2, evidence from other sources, such as archaeological remains of looms or textiles, is also ambiguous or lacking at present, and the majority of textiles from this period, most of which are warp-patterned with relatively short repeats, do not seem to demand its presence.

On balance, we believe it is more likely that the Chinese Drawloom was developed during succeeding dynasties (Tang-Song), concurrent with a gradual switch to weft-patterned silks with complex designs and larger repeats, for which the Drawloom's unique qualities would have been ideally suited.

We agree with Kuhn in one respect however: the Southwest does appear to have played a key role in the development of sophisticated silk-weaving looms, including the Drawloom.

Appendix 2

Minority textiles as ‘tribute’ to the Chinese court

Ancient Chinese records document a variety of textiles that were given as gifts (‘tribute’) to the imperial court by peoples from the Southwest. They are often described as coloured or elaborately patterned, and are sometimes compared with other kinds of cloth. The limitation of these accounts is that the information in them is not usually precise enough to deduce the type of fibre, weave and patterning method with any certainty, though present-day authors offer plenty of speculative interpretations, nevertheless. We present a brief summary of some of the main types.

Banbu 斑布

*Banbu*¹ is a description that often appears in old Chinese records; it literally means ‘multicoloured fabric’. The term seems to have been used to describe various colourful textiles from different areas and minority groups.

Hu Jin describes² how the governor of Danyang (Jiangsu Province) recorded in the *Curiosities of the Southern Regions*³ that during the Three Kingdoms period (220–280 CE) *banbu* was a ‘five-colour silk-like fabric’ woven by the populations of southern China living ‘outside of the frontiers’, it was ‘very sophisticated and most valued as a gift to the royal courts’. The *History of the South*⁴ describes a multicoloured textile called *banbu*, produced from the down found between the seeds of certain trees, paid as tribute during the Four Southern Dynasties (420–589 CE). It came from Hainan and/or from Linyi⁵ (southern China/Vietnam). Hu Jin suggests that the name used for this fibre, *gubei*,⁶ is in fact an ancient name for cotton, which at this time was still largely unknown in central and northern China. He notes that the yarn was dyed before weaving, which suggests to him the use of the ikat technique.

Other Chinese authors, such as Tian Ming [2008], attribute *banbu* to Miao people living in the Youshui area of northern Hunan. During the reign of Xianzong (806–821 CE) of the Tang dynasty, *banbu* was said to have been collected as tax from several southern areas. In the *Suishu Dilizhi*⁷ written in 1024 during the Northern Song dynasty, *banbu* is mentioned as being produced by the ‘descendants of Pangu’ (i.e. the Yao people) in Yuanling as well as in the Changsha area of Hunan. The author of the *Wenchang Zalu*,⁸ Long Yuanying, describes it as being comparable in quality to ramie. This also suggests that ramie was at the time a basic reference for common cloth for Han Chinese.

Descriptions of *banbu* written after the Southern Song and until the late Qing seem to refer to a different type of cloth decorated with the wax resist-dye technique (batik).

Bainiaobu 百鸟布

Bainiaobu (Hundred birds textile) is mentioned as a tribute during the Tang and the Song dynasties. The term is still used in present-day Guizhou by the Gejia people of Chongjiang⁹ to designate a batik pattern, as well as by the Miao in Rongjiang for an embroidered garment with complex pictorial designs. It is likely that the ancient term is related to the modern one from a linguistic standpoint, but the modern usages show that it has been applied to many different types of textile, so there is little that can be said about what it might have meant in Tang and Song times.

Congbu 賁布

In the *Houhanshu*,¹⁰ written during the early 5th century CE, it is said that ‘King Zhao [309–250 BCE] of Qin attacked the kingdom of Chu... the area of Qianzhong [presently the frontier area between the four provinces of Sichuan, Hubei, Hunan and Guizhou, now mostly peopled by Tujia, Miao and Han]. The area was renamed Wulingjün¹¹ and the base for taxes was established as one roll of *congbu* [a cloth produced by the Cong 賁 people, a branch of the Ba people] per adult, two *zhang* [about 4.6 metres at the time] per child.

In the *Shiji-Xinan Yichuan*,¹² written around 100 BCE, *congbu* is mentioned as using a weaving technique similar to *lingjin*,¹³ a term that was used for silk damask.

Congbu is also mentioned in the *Jinshu*¹⁴ (History of the Jin Dynasty, 265–420 CE): ‘The barbarians contribute *congbu*, one roll [about 9.20 metres at the time] per household, one *zhang* [about 2.3 metres at the time] per individual’.

References to *congbu* as a tribute/taxation item continue throughout

the Tang, Song, Ming and Qing dynasties.

Dongbu 峒布

Dongbu (and its variants *xidongbu*,¹⁵ *xibu*,¹⁶ and *dongjin*¹⁷) can be interpreted either as ‘cavern cloth’ or ‘barbarian cloth’. ‘Dong’ might also be related to the term that designated the smallest ‘barbarian’ administrative area at the time. *Xidongbu* could be translated as ‘textiles from the mountain streams and caverns’ and *xibu* as ‘textile from the mountain streams’. The general impression left by these terms is of a cloth that came from a remote part of the Southwest.

Some Chinese historians consider that these textiles could have been woven by the ancestors of the present-day Tujia, Miao or Dong minorities of eastern Guizhou and western Hunan. The *Song Dynastic History*,¹⁸ relates that *xidongbu* was collected as taxation in the fourth year of the reign of the Zhezong Emperor (1089). The *Yitongzhi*,¹⁹ written during the Yuan dynasty, states that weavings from Wuling²⁰ were known as *xidongbu* and *tujin*²¹ (aboriginal brocade).

Geary and co-workers²² quote from a work from Hu Fengheng (1662–1722),²³ the *Liping Ballads*²⁴: ‘Kam brocades ... are manufactured in Rongjiang’ and ‘... the women make cloth to give as tribute.’ Another writer, Li Zhongfang (1796–1820) writes in the *Memories of Qian*:²⁵ ‘The Kam brocade of Caodidong²⁶ village [today Wangdong in Congjiang county, about 50km southwest of Bazhai] in Liping county is the best quality brocade in any of the provinces.’

Gulinbu 谷蔴布

Textiles from the Miao people of the Huishui area (then known as Nanningzhou)²⁷ in central Guizhou, decorated with batik and known as *gulinbu*²⁸ or *fengxiangran*,²⁹ were mentioned as valued tributes to the Song court.³⁰

Langan 阑干 or 斓干

A book dedicated to description of Southwest China during the Han period, the *Huayangguozhi Nanzhongzhi*³¹ written between 348 and 354 CE, refers to textiles made by minority peoples: ‘In Ailao prefecture [‘Ailao’ is an ancient name for an aboriginal tribe of Yunnan], there is *wutong*³² ... people spin it to make cloth, the width is less than five *chi* [about 1.2 metres under the Han]... it is named *tonghuabu*..., there is [also] a fine textile called *langan* or *liaojin*³³ [liao brocade] woven with ramie fibres’.

The term *langan* is still used nowadays by the Miao, Buyi and Shui people to describe ribbons added to decorate the hem of garments.

Tian Ming [2008] quotes Han texts that describe *languan* as a ramie textile produced by the Miao, but considers that this textile was in fact produced by the Tujia. It was also referred to as *dongbu* (see above).

Several other terms referring to minority textiles paid as tributes, such as *xibanhuaji*, *tubu*,³⁴ *tujin*,³⁵ *hengbu*³⁶ and *liaobu*³⁷ also appear in historical records.

1 also *banwenbu* 斑文布, *banji* 斑罽, *banlan* 斑斓.

2 Hu Jin [*banbukao* 斑布考 2001].

3 南州异物志.

4 南史, scroll 78.

5 林邑.

6 古贝.

7 随书地理志.

8 文昌杂录 by 龙元英.

9 重安江.

10 后汉书 *History of the Eastern Han*, scroll 86, chapter 76.

11 武陵郡.

12 史记-西南夷传.

13 绫锦.

14 晋书 scroll 26, chapter 16.

15 溪洞布.

16 溪布.

17 峒锦.

18 宋史, scroll 17.

19 一统志.

20 武陵, see above.

21 土锦.

22 *he Kam People of China* [2003, 131].

23 胡奉衡.

24 黎平竹枝词.

25 黔记 by 李宗昉.

26 曹滴洞.

27 南宁州.

28 谷蔺布.

29 枫香染.

30 Yang Wenbin, personal communication.

31 华阳国志-南中志.

32 梧桐.

33 僚锦.

34 土布.

35 土锦.

36 横布.

37 僚布.

Appendix 3

Traditional natural dyes and fibres

1. Natural fibres

As far as textile scholarship is concerned, ‘China’ is usually associated with silk. A wide variety of other types of fibre were used from earliest times however, and some of the first textiles in China were in fact made from bast fibres. One of the oldest cloth fragments, dating from the fourth millennium BCE, was woven from fibre made from kudzu vine (*Pueraria lobata*, also known as ko-hemp; *ge* 葛 in Chinese).¹ Over time, hemp and ramie emerged as the two most important bast fibres. Hemp grows best in northern and upland regions, while ramie is better suited to the south and lowland areas, though with considerable overlap between the two.

Cotton cultivation originated in India, producing a soft fibre that was preferred for its spinnability, whiteness, and general ease of processing. Small amounts of cotton seem to have been imported into China from the sixth century onwards, but cultivation, which depended on the adaptation of domesticated cotton plants to local growing conditions, did not become widespread until the 13th century.² The cultivation of hemp and ramie, which grow better in marginal areas than cotton, continued well into the twentieth century, and persisted in the more remote parts of the Southwest until recent times.

Natural fibre use in the Southwest

In the absence of archaeological evidence, the main sources of information about past practices are references to fabrics paid as tribute in Chinese records (see Appendix 2). These suggest that hemp, ramie and cotton were the most commonly used fibres in the Southwest, as in other parts of China.

Domestic cultivation of silk, cotton, ramie and hemp was still thriving in the 1980s, but has been gradually abandoned in recent decades

favour of factory-made yarns. Hemp cultivation persists amongst Miao (Hmong) people living in nearby northern Thailand, albeit mainly on a ‘demonstration’ basis for display to visiting tourists.

Hemp and ramie

Archaeological finds show that hemp and ramie have been cultivated for the purpose of textile bast fibre production since at least 3000 BCE, and official records confirm their long history and importance. Ramie fabric was paid as a form of tax during the Zhou dynasty³ and texts from the Han period indicate that *langan*, described as a ramie textile, was paid as tribute by the Miao.⁴

Hemp plants are usually identified as the species *Cannabis sativa*, and ramie as *Boehmeria nivea* (listed as *Urtica nivea* in some older texts). Detailed ethnobotanical studies are lacking however, so we do not know for certain which of the many local terms for hemp and ramie, some of which are listed below, correspond to different species or varieties of these plants.

Both natural white hemp and ramie cloths were considered the proper materials for burying the deceased by most ethnic groups,⁵ including the Miao. It is a common observation in Southeast Asia that older customs relating to textiles may persist in the form of funereal practices long after they have fallen into disuse generally: the use of bark-cloth as mourning-wear by some groups in ISEA is another instance of this.

The term *ma* 麻 is used for both hemp and ramie, which are only differentiated by the prefix attached to it. Ramie was preferred in the east (Qiandongnan and most of Guizhou) while hemp was prevalent in the upland regions in the west, including the Weining area of West Guizhou and most of Yunnan province where it was formerly omnipresent.

In Guizhou, ramie fields were still common until the late 1990s, and wild ramie was also collected. At least five different local terms were used to describe ramie: variants of *zhuma* (紵麻, 苧麻 or 苧麻) are the most common, *jiama* 家麻 (‘home hemp’) is often heard in the Qiandongnan area of Southeast Guizhou, *yuanma* 园麻 (‘garden hemp’) is also encountered. The term *mang* is used by some Hmong Miao groups of the Dafang area in Northwest Guizhou and *piguma* 屁股麻 (the most delicate translation we can find for this is term is ‘bottom hemp’) by the Miao of Zhijin in western Guizhou. *Qianma* 荨麻, also presumed to be a type of nettle, is said to have been used in some areas as a substitute for ramie.

Qingma 苘麻 was used in north Hunan and south Hubei during the

eastern Zhou. Zhao Feng [2012] identifies this as Indian mallow or Indian hemp (*Abutilon theophrasti*).

Huocao 火草, also known as *goubao dadingcao* 钩苞大丁草 identified as *Gerbera delavayi*, was used until recently in Yunnan, notably by Zhuang people in the Qiubei area of Wenshan County who wove a rough, thick, off white tabby from it, for use bedcovers [Luo Yü 1999].

Silk

In the Southwest silk was well-known and widely used, but it seems to have been a ‘luxury’ fibre reserved for decorative purposes such as embroidery or discontinuous supplementary wefts, as many of the textiles illustrated in this book attest. Very few textiles were woven entirely from silk.

Several different varieties of silk have been raised in the Southwest. The predominant type of silk grown in China today is the silk moth (‘silkworm’) *Bombyx mori*, and this type was certainly widely grown in recent times. As late as the 1990s a domestic silk industry was still active in places such as Huangping in East Guizhou and Huanjiang in North Guangxi.

Other types of silkworm were also raised. Tang dynasty annals mention the raising of *zhecan* 柘蚕 (distinct from *zhacan* 榨蚕 which was common in northern China). A Song dynasty text suggests that *zhecan* was much more common than *Bombyx mori* in the Wuxi 五溪 area of western Hunan, where it was still grown in the 1950s. *Zhecan* was smaller, more fragile and fed on a different type of mulberry tree, *Cudrania tricuspidata*, which was also used to extract dyes. The moth fed directly on the tree, rather than on a tray of leaves, the latter being more convenient for the growers. *Zhecan* silk was not as shiny and smooth as *Bombyx* silk but it was stronger. As the fibre tended to break while opening the cocoon, it was not suitable for weaving satin, which requires long fibres, but it was well suited for use as supplementary wefts for brocaded bedcovers.⁶



*Fig. 1 (Above) hemp plant, grown by Miao (Hmong) people in Chiang Mai, North Thailand.
(Below) hemp at various stages in processing, from raw fibre (at left) to woven fabric (at right).*

Zuocan 柞蚕 ‘oak silkworm’, (*Antharaea pernyi*; also known as *yecan* 野蚕 ‘wild silkworm’, *chuncan* 春蚕 ‘spring silk worm’, and *shancan* 山蚕 ‘mountain silkworm’), feeds on oak leaves and produces tussah silk. It is said to have been introduced from Shandong province to Guizhou in the twelfth century. During the Emperor Qianlong’s reign (1735–1795) an important tussah silk industry was set up in Zunyi (northern Guizhou), which prospered during the nineteenth century.

Lastly, a very peculiar type of silk ‘fabric’ is produced Guizhou province and appears to be unique to that area. It is referred to as *gang-a-mao* in the Miao language of Zhouxi district (near Kaili, eastern Guizhou) and as *cansi zouban* 蚕丝走板 (‘silkworm walking the board’) in Chinese. After being fed mulberry leaves, hundreds of silkworms are placed on a smooth wooden board which is moved regularly so that the insects cannot stay in a fixed place and produce individual cocoons: instead they ‘weave’ a piece of silk felt which has the size of the board. The resulting felt is rather fragile and is used as an appliqué to decorate garments. The Miao in Zhouxi and Danzhai (East Guizhou) cut it into tiny squares which are combined with embroidery on aprons and jackets, while the Yao of Libo (South Guizhou) use long narrow bands, dyed red or orange, placed along the hem of skirts. The Miao of Rongjiang (Southeast Guizhou) use it as a background for embroidery on their costumes.

Cotton

Despite the fact that cotton arrived first in the West of China, it does not seem to have become important in the Southwest until relatively recent times. Tian Ming [2008] writes that cotton only started to become available to the Tujia in Hunan under Qing Emperor Kangxi’s reign (1662–1721) and that under Emperor Jiaqing (1795–1820), even though the Xizhou area had some cotton plantations, hemp and ramie were still the most widely used fibres. A text dating from the Tongzhi period (1862–1874) states that no cotton was grown in Hefeng County (a Tujia area in southern Hubei province). Even at the close of the Qing dynasty, local production was limited and cotton had to be imported from the Dongting lake area to fulfil demand. This cotton was known in the Southwest as *huhua* 湖花, ‘lake-flower’, to distinguish it from locally grown cotton which was called *xianghua* 乡花 (‘countryside cotton’). Little cotton is grown in the Southwest today, though a great deal of commercial cotton yarn is used for traditional weaving.

Wool

Wool was an important fibre, both in the form of woven fabrics and

felt, in higher altitude areas such as the Weining plateau of western Guizhou, the Daliangshan region of southern Sichuan and mountainous regions in Yunnan. The Yi and Miao as well as some smaller groups such as the Jingpo living in these areas made use of it to insulate themselves from the cold climate. Wool was also used occasionally for discontinuous supplementary wefts by the Tujia of Northwest Hunan and Northeast Guizhou, the Qociong Miao in Songtao, the Hmong Miao in the high plateau of western Guizhou, and by the Hong Yao of Northeast Guangxi.

Bast fibres

The *Ximan Congxiao* 溪蛮丛笑, a book dating from the Song dynasty, relates that the local population in the Wuxi area (五溪 ‘Five Rivers’, corresponding to the Huaihua region in western Hunan) wove gauze with fibres from the bark of various trees of the mulberry family [Tian Ming, 2008]. Tree bark fibres have rarely been used in recent times, with the exception of the Li people of Hainan Island and the Wa minority of eastern Yunnan.

Domestic versus commercially produced yarns

At the time of our most recent visits to the Southwest in 2013 it appeared that the production of locally grown fibres and yarns had ceased. Whenever old stocks of cotton yarns still exist in the house, the weaver always prefers to use them for the warps, but these stocks are quickly vanishing. For ground wefts and coloured supplementary wefts, commercial yarns were the norm amongst all the weavers we visited. Pre-dyed commercial yarns are particularly valued for their brilliant hues.

2. Natural dyes and pigments

China possessed an array of textile dyes from the earliest times; during the Zhou period (1046–771 BCE) about twenty textiles colouring materials were known and recorded, increasing to more than thirty under the Han (BCE 221–220 CE).⁷

Mineral pigments

Mineral pigments seem to have been amongst the earliest colouring materials used on textiles in China: they are frequently found on textiles found in tombs from the Warring States period and Han dynasty. We were particularly intrigued, therefore, to find that some of these techniques survived until recent times in the Southwest.

Pigments, as distinct from dyes, are insoluble materials that are ground up and then applied to the fabric surface by painting or

stencilling. They produce bright colours which do not fade on exposure to light, but in most cases a textile decorated in this way cannot be washed, and the pigments tend rub off easily. This was no great disadvantage, of course, for textiles destined to be placed in tombs.

Mineral pigments were used by Zhuang people in the Napo region until recently. A local 'red stone', probably a type of ochre, was ground to obtain a fine powder, which was then boiled with water and rice wine to produce a brownish red colour, which corresponds to a colour on some older Napo bedcovers (Chapter 5, Section 5.23). We also discovered two mineral pigments on an old Binyang wedding bedcover (Chapter 5, Section 5.21) during the research for this book. These represent rare, perhaps unique, survivals of a textile colouring technique that was thought to be extinct.

Cinnabar, a mineral with a deep red colour, has numerous uses in China, from colouring lacquer to making seal 'ink' (actually an oily red paste), and was also used on ancient textiles from the Warring States and Han periods. The most important production centre was located in the northern Hunan city of Chenzhou. This region was so famous in China that cinnabar was often referred to as *chensha* 辰砂 'Chen powder'. Cinnabar was applied in the form of a paste to textiles in ancient China, such as those from the Chu kingdom textile. Cinnabar and other pigments were still utilized by *pingdi* Yao in Daoxian County (southern Hunan) to decorate Daoist priest's robes in the early twentieth century. In this case the decoration seems to have been applied mainly by painting, treating the robe as a 'canvas'.

Indigo

Indigo was by far the most widespread natural dye and it is still used in the Southwest. Its presence is revealed by imposing jars where the thick, dark, effervescent and pungent preparations are brewing, in the Dong and Miao villages of Guizhou (Fig. 2). It is said that its smell keeps away biting insects.



Fig. 2 Indigo dye vats in a Dong village in Guizhou. (Above) a freshly prepared vat. (Below) a vat after several days fermentation. Dyeing may be done directly with the yellowish solution underneath, or the blue indigo crust can be scooped off and saved as a paste for later use.

Local minorities like to saturate their textiles with indigo until they almost turn black.⁸ In some places dark indigo cloth is calendered to produce a dark coppery sheen. Chemical supplements are often added nowadays to enhance this effect.

The Chinese term *landian* 藍靛 is generic for indigo, which is extracted from several different plants. Yang Wenbin, a specialist in the dyes of minority groups, explained to us that in Guizhou, the most commonly used plants are *liaolan* 蓼藍 (*Polygonum tinctorium*) and *malan* 马蓝 (*Strobilanthes cusia*). *Mulan* 木蓝 is also used, but is less common as it produces a smaller harvest, and *songlan* 菘蓝 (*Isatis tinctoria*) is grown in the Jianhe area (eastern Guizhou), but most Miao people consider its colour rather pale in comparison with other dye plants.

From the Ming dynasty at the latest, Miao, Han and Buyi people from villages around Wanchao (close to Kaili in eastern Guizhou) grew *malan* not only for their own use but also to produce indigo paste, which was sold in markets within a 75 kilometre radius. Ten large circular earth basins called *dadiantang* 打靛塘, each four metres in diameter and one metre deep, were used to prepare the paste. Several of these basins can still be seen in the villages. About 5000 pounds of indigo leaves were placed in each basin, together with water and ashes, then thoroughly mixed with wooden poles by four to five people. After fermentation the indigo paste would deposit as a lower layer. There were two holes, one at the bottom to extract the paste, one higher up to allow the water to run off.

One *mu* of land (equivalent to 667 square metres) could produce between 3000 and 5000 pounds of leaves, from which 1000 to 1500 pounds of paste could be extracted. The leaves were usually harvested by the end of the tenth lunar month. Indigo paste provided substantial revenue for local families, but in the last few years indigo production in Wanchao was gradually abandoned as demand decreased.

Yellow

The preferred plant to obtain a yellow dye was the *huangzhizi* 黄栀子 (*Gardenia jasmenoides*), the use of the seeds of which was already known during the Han dynasty. It grows in the wild but can also be cultivated domestically, and it can still be purchased today on medicinal plant markets. The flowers and fruits from *huaihua* 槐花 (*Sophora japonica*) as well as the roots of *jianghuang* 姜黄 (*Curcuma longa*) were also collected to produce a yellow dye.

Red

The stems of madder (*qian* 茜 or *qiancao* 茜草; *Rubia cordifolia*) were

chopped and soaked in water to produce a red-brown dye. This species of madder grows throughout the Himalayan foothills and upland regions of the Southwest and is sometimes called 'Indian madder' though its range is wider than the name suggests. It is distinct from the European madder species. It was commonly used to produce red, brown and orange shades on wool and silk.

A red dye termed *su* 苏 was also used in some areas. This term seems to have been used to describe the wood and bark of several different trees, including *Caesalpinia sappan* (which was widely traded throughout Asia as a dyestuff) and *Perilla nankinesis*. The dye was locally known as *muhong* 木红 or *hongmu* 红木 in Guizhou. Its use almost disappeared after the 1950s, probably as a result of the loss of local forests and the increasing availability of commercial red dyes.

Other types of tree bark were also employed for making red and yellow colours, such as *yangmei* 杨梅 (*Myrica rubra*, Chinese red bayberry). A reddish brown or pale rose dye was extracted from the bark of *chunyashu* 椿芽树 (*Toona sinensis* or *Cedrela sinensis*). Most of these barks can still be found in small quantities on medicinal plant markets.

Saffron, *honghua* 红花 or *zanghonghua* 藏红花 (*Carthamus tinctorius*) was appreciated for its brilliance and was occasionally used in the Southwest, but it was expensive since it had to be imported from Sichuan or Tibet. Saffron also has poor light-fastness, so it is doubtful whether this shade survives in many older textiles.

Lac

Lac is a brilliant, purplish-red dye that is extracted from a scale insect. It was formerly grown over a wide area in Southeast Asia, though production today is centred on a few areas in Burma and Thailand. It was widely traded at one time in the form of raw dye and also pre-dyed silk yarns. The colours produced by lac vary according to the mordant used, but cover a range from pinks through fuchsia shades to purplish reds. On glossy silk these colours can be quite intense and can be mistaken for synthetic colours.

The use of chemical dyes and the dating of weavings

Commercially produced synthetic colours were imported from Europe from the 1870s onwards,⁹ and seem to have become widely available (for those that could afford them) by the end of the nineteenth century. Synthetic dyes made possible vivid reds, greens and purple shades, and a 'true black' that were not possible to achieve with natural dyes (though some brilliant mauve and fuchsia pink shades were produced much earlier using lac, as mentioned). Initially their

use was limited by their cost, and they were used sparingly. Typically, they were used in small amounts to dye silk supplementary wefts, while ground-weave yarns employed less expensive fibres and natural dyes.

In 1991, while researching Tujia brocaded wedding bedcovers in an isolated village in Xiangxi, western Hunan, an elderly weaver took out from the trunk containing her heirloom a bedcover, which had been woven by her mother for her wedding, which took place in about 1915. About a quarter to a third of the silk supplementary wefts in the bedcover appeared to be dyed with synthetic colours.

Two instances where we found that old textiles persisted but that brocading looms had disappeared long ago, provided some further clues about the date of adoption of commercial dyes. Dong people in the Bazhai region had abandoned loom weaving by the 1930s at the latest. More than three quarters of the old brocades that we were able to find from Bazhai were entirely dyed with vegetable pigments. In Wenshan, where brocade weaving disappeared even earlier, we were not able to find any examples of weavings that employed synthetic colours. It seems safe to assume that the majority of brocades woven in Southwest China in the nineteenth century were woven with natural dyes.

It is not safe to assume the converse however (that a brocade with natural dyes was necessarily woven during the nineteenth century, or earlier), since the use of natural dyes seems to have persisted in some areas, and replacement was a gradual and piecemeal process.

The ‘last holdout’ against replacement by synthetic substitutes is indigo. This material is still unrivalled in its ability to produce deep, rich blues, using cheap and locally available plant sources. As noted, its use continues in some parts of the Southwest.

1 Langford [2009, 8], writes about *Pueraria lobata*: ‘It is referred to in *Shi Chun Qiu* (*Master Lu’s Spring and Autumn Annals* written during the Warring States period 480–222 BCE) where the king wears a ‘dress of fine co-hemp in summer.’ ‘Another reference is from *The Book of Master Han Fei*, written in the Han dynasty and quoted by Cheng. The writer described Yao, a leader of several tribes as ‘wearing fur in winter and co-hemp in summer’. The description suggests these fabrics were known and used as early as the Neolithic period.’

2 Baker Brite and Marston [2013].

3 *Tributes to Yü*, in *The Institutions of Zhou* [Langford, 2009, 72].

4 Tian Ming, 2008.

5 Langford [2009, 184]: ‘Hemp clothing worn was worn by the male relatives for the funeral of the deceased. The hemp consisted of various grades depending on the status of the deceased and the mourners. Three grades of hemp were important for

those of the higher rank. *Sima* (or fine cloth) was the best quality as it was processed in a similar manner to the hemp worn at court.’

6 Tian Ming [2008].

7 Chen Weiji [1992].

8 In terms of its definition, indigo straddles the line between ‘pigment’ and ‘dye’. It is applied to fabrics in a soluble, colourless form from a fermentation vat, in a process that resembles dyeing. In its blue, oxidised form, however, it is an insoluble pigment.

9 The earliest synthetic dyes were based on aniline (a coal-tar extract). Synthetic dyes are often referred to as ‘aniline’ dyes, though in fact aniline-based materials were used for a relatively short period, due to problems with light fastness. An old textile with synthetic colouring that survives with its original brilliant shade undimmed is unlikely to have been dyed with an ‘aniline’ dye.

Appendix 4

Myths and deities related to weaving

For most groups in the Southwest, including the Han, weaving is regarded as central to the founding and development of their culture. The origin of weaving is attributed to goddesses or gods, which are often associated with the primary creation myth.

The Dong

Sa Ma,¹ meaning ‘great original mother’ in the Dong language, is the ancestor goddess of the Dong. She embodies the sun, which can be often seen embroidered on Dong jackets. She is represented by a red umbrella displayed on Sa Sui’s altar (Chapter 5, Section 5.13).² In Northeast Guangxi (Sanjiang County), Dong people call her Satianba³ and she is said to be incarnated as Saba Sui’e⁴. In Chinese this term translates as a type of spider.⁵ The spider’s web is linked to the image of the sun’s rays and represents the source of spinning and weaving.

Most Dong villages possess a protected enclosure called *samaci6* with an altar called *ditou*,⁷ where Sama is represented either by a female statue or more often by a pile of stones on top of which an offering of red and green silk threads is displayed.

In more recent times, Beixi,⁸ a Dong weaver famous for creating new brocade patterns in the nineteenth century is remembered in the area of Boyang in Southeast Hunan. This region is renowned for the fineness of its weavings and is sometimes referred to as *huabeixi* in her honour.

The Zhuang

Dabu,⁹ ‘The Widow’ in the Zhuang language is considered a mythical model for weavers; a goddess stole her most beautiful brocade with a flurry of wind and took it to heaven in order to copy it. Eventually the goddess brought back a giant brocaded bedcover, which was used to protect the whole village.

The Han

Leizu¹⁰, also known as Xilingshi¹¹ or Jiannü¹² (Silkworm Woman), born on the Shu Mountain in Sichuan and wife of the Yellow Emperor Huangdi, the mythical founder of the Chinese civilization, is regarded by the Han as the inventor of sericulture. Huang Di's minister Pei Yu is credited with invention of the loom [Broudy 1979, 20].

In Han Chinese culture Matouniang¹³ (Horse Head Girl) is also a goddess of sericulture; legend says that her mother promised her as a wife to whoever would bring back her kidnapped father. Her horse succeeded in freeing him but her father refused to give her daughter to the horse and killed it. After covering herself with the horse's skin, the girl transformed into a giant silk worm chrysalis, produced a silk cocoon and flew to the skies on her winged horse.

In Sichuan, where the Shu culture was a precursor of silk weaving in ancient China, Cancongye¹⁴ (Grandfather of the multitude of silk cocoons) and Cancongpo¹⁵ (Grandmother of the multitude of silk cocoons) are worshipped as original ancestors, the equivalent of Fuxi and Nüwa for the Han or Nuogong and Nuomu for the Tujia or the Miao. The original meaning of the character Shu 蜀 was 'wild silkworm' and the Shu kingdom was also known in the past as Cancong¹⁶ (multitude of silkworms).

1 薩妈/薩瑪 (or Sa Sui 薩岁 in East Guizhou).

2 Zhang [2005, 499–500].

3 萨天巴.

4 萨巴隋俄.

5 金班大蜘蛛, see Lü [2001, 118].

6 薩妈祠.

7 地头.

8 焙喜.

9 姐布.

10 嫫祖.

11 西陵氏.

12 茧女.

13 马头娘.

14 蚕丛爷.

15 蚕丛婆.

16 蚕丛.

Appendix 5

Phylogenetic methods

5.1 Table of looms

The table on the following two pages lists the looms that were used for the phylogenetic analysis in Part III. Looms in bold type are those that are described in detail in this book. The remainder were selected for comparison purposes. Abbreviations: FBBS = foot-braced backstrap loom (no frame), BS = backstrap loom (no frame), BF = back-tensioned frame loom, 2/4LH = frame loom with two/four linked, bidirectional heddles.

Name of Loom	Location	Brief description	Source
Fuzhou FBBS	Nan'ao island, Fujian, China	A prehistorical remnant of a backstrap loom, dated to the Fuzhou culture (3400-2450BC)	Kuhn [2013]
Hainan Meifu Li FBBS	Danghehe, Hainan Island	Foot-braced backstrap loom, circular warp	CB field observations
Hainan Qi Li FBBS	Shuimiaoqiao village, near Wuzhishan, Hainan Island	Foot-braced backstrap loom, circular warp	CB field observations
Hainan Hu Li FBBS	Ledong area, Hainan Island	Foot-braced backstrap loom, circular warp	CB field observations
Taiwan Angat FBBS	Northeast Taiwan	Foot-braced backstrap loom, circular warp	Wang 1958, various online resources
Taiwan Yami BS	Island off the Southwest tip of Taiwan	Backstrap loom, circular warp	Yoshimoto [2013 L-35]
Philippines Igat BS	Cordillera, Luzon region, Philippines	Backstrap loom, circular warp	Yoshimoto [2013 L-19]
Thailand Karen BS	Northern Thailand	Backstrap loom, circular warp	EB field observations
Lampung Lembur BS	Lampung, Indonesia	Backstrap loom, circular warp	Barnes [1989], CB field observations
Samarang Palembang BS	Palembang area, Sumatra, Indonesia	Backstrap loom	CB field observations
Lombok BS	Lombok, Indonesia	Backstrap loom	CB field observations
Guizhou Miao Huishui BF	Guizhou, China	Backstrap frame loom	EB field observations
Hunan Tujia Longshan BF	Hunan, China	Backstrap frame loom	EB field observations
Guizhou Zhuang Napo BF	Guizhou, China	Backstrap frame loom	EB field observations
Shaoxi Dongxi BF	Shaoxi, China	Backstrap frame loom	Various online resources
Guizhou Miao Zhaoxing BF	Guizhou, China	Frame loom	EB field observations
Yunnan Dai Jinghong BF	Yunnan, China	Backstrap frame loom	Yoshimoto [2013 L-42], Dai loom in Hangzhou Silk Weaving Museum (CB)
Yunnan Dai Huayao BF	Yunnan, China	Backstrap frame loom	Yoshimoto [2013 L-46]
Guangxi Hong Yao Longji BF	Guangxi, China	Backstrap frame loom	EB field observations
Guizhou Miao Antai BF	Guizhou, China	Backstrap frame loom	EB field observations
Guizhou Miao Shidong BF	Guizhou, China	Backstrap frame loom	EB field observations
Guizhou Miao Baka BF	Guizhou, China	Backstrap frame loom	EB field observations

Guizhou Miao Geyi BF	Guizhou, China	Backstrap frame loom	EB field observations
Guizhou Miao Shimou BF	Guizhou, China	Backstrap frame loom	CB field observations
Guizhou Miao Panxian BF	Guizhou, China	Backstrap frame loom	EB field observations
Guizhou Zhaoxing Miao	Guizhou, China	Frame loom	EB field observations
Korea Hantan BF	Korea	Backstrap frame loom	UNESCO online account
Japan Mochiiki BF	Mochiiki, Japan	Backstrap frame loom	Yoshimizu [2013]:138
Hunan Dong Tugdao BF	Hunan, China	Backstrap frame loom with Complex Pattern Heddle	EB field observations
Guangxi Maonan Huanjiang BF	Guangxi, China	Backstrap frame loom with Complex Pattern Heddle	EB field observations
Guangxi Zhuang Binyang BF	Guangxi, China	Backstrap frame loom with Complex Pattern Heddle	EB field observations
Guizhou Buyi Libo BF	Guangxi, China	Backstrap frame loom with Complex Pattern Heddle	EB field observations
Sichuan Stepping Stone	Sichuan, China	Frame loom	Loom at Shanghai Textile Museum (CB)
Hangzhou Lesser Drawloom	Hangzhou, China	Frame loom	Looms at the Hangzhou and Suzhou Silk Weaving Museums (CB)
Hangzhou Greater Drawloom	Hangzhou, China	Frame loom	Looms at the Hangzhou and Suzhou Silk Weaving Museums (CB)
Hangzhou 24-Loom	Hangzhou, China	Frame loom	Loom at the Hangzhou Silk Weaving Museum (CB)
Nepal Sherpa Treble 2LH	Nepal	Frame loom	Dunmore [2009]
Tibet Treble 2LH	Tibet, China	Frame loom	CB field observations
Guizhou Miao Zhouxi 2LH	Guizhou, China	Frame loom	EB field observations
Guizhou Miao Xijiang 2LH	Guizhou, China	Frame loom	CB field observations
Guizhou Baike Yao Yaoshan 2LH	Guizhou, China	Frame loom	CB field observations
Guizhou Buyi Xingyi 2LH	Guizhou, China	Frame loom	EB field observations
Guizhou Zhuang Jiexi 2LH	Guizhou, China	Frame loom	EB field observations
Lao Tai 2LH	Northern Lao	Frame loom	EB field observations, Chavanan [2004]
Thailand Tai Lan 2LH	Northern Thailand	Frame loom	EB field observations: Paan Pan, Suam [2009]
Sumatra Minangkabau Type 1 2LH	Minangkabau, Sumatra, Indonesia	Frame loom	Yoshimizu [1991]
Malaysia Terengganu 2LH	Terengganu, Malaysia	Frame loom	Various online resources
Cambodia Keribankh 2LH	Cambodia	Frame loom	Green [2003]

5.2 Table of features used for characterizing looms

For the set of looms studied in the final chapter of this book we assembled a list of characters, each of which was coded as ‘present’ (1) or ‘absent’ (0) for each loom. The characters were selected in order to give a complete description of the working of the looms and the techniques employed on them, considering how each part is used during the weaving process. We excluded features that we felt were superficial or related purely to local raw material availability, such as type of wood, finish and carved decoration.

‘Off-the-loom’ processes such as yarn dyeing, warping, and finishing techniques were not included in this analysis.

Characters are organized into groups of related features and given short codes.

Some of the characters in the list are shared by all the looms in our study. Such characters are not informative as regards lineage, but are important for understanding the characteristics of ancestral looms.

Character description		
Warp configuration		
Warp and web are circular		

W003	Band and web are false-circular: 'warp lock' [Emery 1979, 151]	
W004	Long rod associated with false circular warp	
W005	Band and web are flat (ie not circular)	
W006	Warp beam and cloth beam are in a horizontal or near-horizontal plane	
B005	Body-tensioned (back-tensioned) loom	
F006	Externally braced back-tensioned loom	
W007	Externally braced back-tensioned loom	
W008	Warp beam braced behind 2 stakes or uprights	
W009	Weaver's feet rest on footrest positioned directly below warp beam and secured by same stakes (sometimes with a spacer in-between)	
W010	Weaver's feet rest on bar that is tied to a stake behind the loom, or on large stone, or other ad-hoc arrangement	
W011	Weaver sits in a small, wooden box-like frame, at ground level	
W012	Warp beam and cloth beam (and associated warp and cloth shafts) are on body-shafted frame types (some Indonesian looms)	
F011	Frame for back-tensioned loom: U-shaped frame supporting warp beam, at ground level	
W013	Frame component: upright H-frame incorporating warp beam and long V-shaped heddle rocker/supports	
W014	Frame is attached to two horizontal or sloping bars, incorporating seat	
W015	Warp beam supports are set back behind H-frame, to allow slightly longer warp (modification of basic H-frame model)	
W017	Reed is supported by two long flexible bamboo rods attached to the warp frame at the back and joined at a point over the weaving area	
B015	Back strap (used to strap) behind weaver, for tensioning the warp	
B019	Back strap attaches directly to cloth beam, no cords (if '0' = cords used)	
B020	Beam (rigid beam behind weaver, instead of flexible strap)	
F017	Rigid rectangular frame for frame base, supporting cloth beam and warp beam 4 pillars (may form base of overhead frame)	
F102	Frame is perfectly or near-perfectly horizontal	
F103	Frame slopes upward to warp beam	
F104	Frame slopes downward to warp beam	
F105	Frame component: two uprights and a rigid cantilever (supporting pair of foot-operated heddles and/or swinging reed bar)	
C006	Cantilever supports heddles	
C007	Cantilever supports reed	
F108	Frame component: upper frame supported on 4 pillars, not integral with lower frame supports (distinct from cuboid frame types)	
F009	Pillar frame supports heddles	
F010	Pillar upper frame supports reed	
F111	Frame component: warp beam is supported by two horizontal or slightly sloping bars rising up from back pillar supports of loom	
W012	Warp beam is set back along the sloping bars	
F113	Cuboid, free-standing frame incorporating warp beam	
F114	Frame extends horizontally behind the rear supports, placing the warp beam some distance further back outside the main frame	
F115	Frame has an extension with horizontal members and two pillar supports at the back, not an integral part of the main frame, supporting the warp beam	
F016	Parallel bars' frame: two overhead bars supported by a trestle over the cloth beam and a	

	second trestle over the midpart of the loom. Used for supporting ground warp heddle.	
FE07	Heddles can move along overhead beam as weaving progresses	
FE08	Heddles/swinging reed bar rest in cupshaped depressions	
FW09	Frame consisting of a single horizontal pole suspended from two single-pole upright supports	
FW10	Beams are directly connected to single pole upright supports, or braced with cords	
FW11	Warp passes around second beam and back to first (i.e. doubles back to increase length or make loom more compact)	
WB01	Warp is held in a bunch to an external point (not secured to warp beam)	
WB02	Warp beam (warp is attached to or wound around this rod, situated at opposite end to the leading edge of the web)	
WB03	Second warp beam near to or above the main warp beam (used for eg pattern warp)	
WB04	Warp is wound onto the warp beam when weaving commences	
WB05	Warp beam	
WB06	Warp beam	
WB07	Warp beam	
WB08	Warp beam at right angles to warp	
WB09	Warp beam in same plane as warp	
WB10	Warp beam is held by two brackets that slot over the ends, then linked to the frame via cords	
WB11	Warp-beam fits into two uprights with slots in (includes backstrap and non-backstrap types)	
WB12	Warp beam has paddle-shaped extensions at each end	
WB13	Warp beam is equipped with spokes which allow the rotation of the beam to be stopped (eg by jamming a stick between the spokes and the loom frame) in order to tension the warp, also used for winding warp yarns onto the warp beam	
WB14	Warp beam has simple, flat spokes	
WB15	Warp beam has star-shaped spokes (bars with V-notch cut in)	
WB16	Tension is maintained by a single rod that passes through the warp beam, then is rested on a peg or tied off against the loom frame	
WB17	Warp is held in warp beam by stick-and-groove mechanism (eg Tibetan trestle loom)	
WB18	Warp is padded with sticks or paper when wound onto warp beam	
WB22	Warp goes around a beam at far end of frame, and is tied off over the weaver's head (frame looms only)	
WB23	Warp goes around a beam and then to a second beam above, to allow extended warp	
CB01	Clamp beam is present	
CB02	Clamp beam - solid	
CB03	Clamp beam - square section, solid	
CB04	Clamp beam - round, solid	
CB05	Clamp beam - flat plank	
CB06	Clamp beam - square section with four holes pierced from two directions, so beam can be fitted onto two uprights and rotated to wind cloth	
CB07	Clamp beam - square section, rests in forked frame in front of weaver	
CB08	Clamp beam - split or double (approx equal halves)	
CB09	Clamp beam - male and female halves fit together tightly to clamp cloth	
CB10	Clamp beam - grooved, with narrow stick set into it to secure the warp	
CB11	Clamp beam - forked ends	
CB12	Clamp beam - knobbed ends, cord fits around knobs	

CB1	beam - square ends, two wooden pieces attached to backstrap	fit over the ends to
fix the backstrap in place		
SB1	length of cloth is wound around cloth beam to help secure it	
CB15	can be wound on cloth beam	
CB16	beam is attached to a fixed bar via short cord ties. Cloth beam does not rotate or move	
CB17	'cloth beam: cloth goes over bar next to the weaver and is collected on roller below	
SP1	on the ground	
SW1	weaver sits on raised bench seat	
SB05	is integral to loom frame	
SW16	sits alongside warp rather than behind cloth beam	
HE11	attached to lower warp, pulls up (lower warp = warp that is in bottom position when natural shed is open)	
HE12	attached to lower warp, pulls down	
HE13	attached to upper warp, pulls up	
HE14	attached to upper warp, pulls down	
HE15	heddles only (double loops attached to one side of warp only, not bidirectional heddles)	
HE16	simple heddles linked together by a rocker bar	
HE17	double sided (two sets of heddle loops, one above the warp and one below, attached to the same warps)	
HE18	sided heddles pull in one direction only (warp passes through top or bottom section only)	
HE19	sided heddles pull in both directions (warp passes through loop or eye at the centre of the heddle)	
HE1	two pair(s) of double-sided heddles joined together	
AD1	additional simple heddles for supplementary weft, or warp patterning or twills	
HE2	additional simple heddle	
HE3	additional simple heddles	
MD1	multiple (3 or more) additional heddles for complex warp or weft patterning	
AD15	ional heddles have no supporting rods (loops of thread tied together in a bunch)	
AD16	ional heddles are used for twills	
AD17	ional heddles are used for warp patterning	
AD18	ional heddles are used for weft patterning	
SP19	complex heddle incorporating several pattern rods or strings (see patterning systems)	
HE10	type: movable simple heddle raised directly by hand, no external support (i.e. not linked to frame or other support)	
HE13	les with two rods in one heddle, one for picking up the entire heddle and one for selecting part of it (compound heddles)	
AD14	ional rods are used for warp patterning	
AD15	ional rods are used for weft patterning	
PE17	on heddles are raised by pull-cords over pulleys	
PE18	on heddles have a string and a weight below them to allow them to return to resting position after lifting	
AD19	ional double-sided heddles for patterning and twills	
HE20	additional heddles for twills	

NA01	Additional double-sided heddles for patterning	
NA02	Additional heddles are located behind main heddles (i.e. further from weaver)	
NA03	Additional heddles are located in front of main heddles (i.e. nearer to weaver)	
NA04	Additional heddles are used for warp patterning	
NA05	Additional heddles are used for supplementary weft patterning	
NA06	Double-sided, single-directional heddles for patterning and for twills and satin effects	
NA07	Additional double-sided, single-directional heddles used for patterning	
HE01	Construction: string loops only, no internal supporting rod	
HE02	Wound continuous heddle	
HE03	Winding: spiral continuous	
HE04	Winding: alternate continuous	
HE05	Individual loops	
HE06	Tied in bunches to support rod	
NR09	Additional rods tied tightly on top of heddle rod to secure the spacing, may also act as handle	heddle threads, control
HE08	Heddle is wound around upper rod of a pair	
HE09	Heddle is wound around lower rod of a pair	
HE10	Heddle winding encompasses both rods of a pair (not wound around rods individually)	
HE13	Heddle has a loose rod inside it that rests on the warp	
NA08	Mechanical systems for raising/cr (additional heddles in lifting)	
HR03	Heddle supported (elevated) by weight attached to pulley above the weaver	
FR04	Operated system for raising heddle	
HR05	Heddle is supported by a two-pronged rocker that is attached to the upright part-frame: the back projection is attached to a cord to the weaver's foot allowing it to be raised by depressing the cord	
TR06	Heddle(s) are loops of cord around the weaver's foot	
TR07	Heddle(s) are sticks oriented in same direction as warp	
FR08	Treadles (about the length of the weaver's foot)	
FR09	Treadles	
FR10	Bars are present between the heddles and treadles to distribute tension evenly	
TR11	Heddles are set in slots in a wooden beam at ground level, to keep them in line	
TR12	Heddles are sticks oriented at right angles to the warp	
HR13	Heddles are suspended overhead on frame or ceiling or other fixed support	
HR14	Heddles are joined by short cords to a sliding wooden rocker over a bar	
PH16	6 of heddles joined by a cord passing over a rod or similar	
HR17	Cords pass over a wooden rod	
WR08	Wooden rod is equipped with rollers	
PH19	9 of heddles joined by a wooden rocker on a bearing	
PH20	10 of heddles linked together via cord and pulley arrangement	
FR23	Weights-and-rocker bars system for supporting heddle: two uprights with a bar between, with short bars (sometimes carved into fish shapes) at the ends that support a heddle on one side and a warp-depression bar on the other.	
FR28	Rest between treadles	
HR24	Heddles are connected to asymmetric rocker bars, hinged to a rod parallel to the warp, situated over the warp frame (pulls heddles upwards only: 'crow' rockers on some Chinese looms)	
HR25	Heddles are connected to a bamboo bow or spring that allows the heddle to be pulled downwards, springing back up after extension (pulls heddles downwards only)	

HM01	Method of raising of plain heddles	shaped rocker bar at the back of the loom
WM02	Woven treadle	
HM03	Of cord around the weaver's foot	
HM04	Merweight attached to treadle	
HM05	es are connected to asymmetric rocker bars, hinged to a rod parallel to the warp, situated over the warp frame (pulls heddles upwards only: 'crow' rockers)	
HM07	es are connected to a bamboo bow or spring that allows the heddle to be pulled downwards, springing back up after extension (pulls heddles downwards only)	
HM08	es are raised by a second person (drawboy/drawgirl)	
RM09	open (finger rods) holding a warp crossing, positioned near to the warp beam	
RM02	of lease rods (laze rods)	
RM04	used to lift lease rods and warp	
RM05	of thread through the warp, between heddle and warp beam, used to keep warp yarns in order	
RM06	stick (inserted into warp), sometimes called shed roll, retains natural shed for ground weft insertion	
RM07	sized shed stick (cylinder or block or similar around 6cm or more in diameter, holding wide aperture open)	
RM08	stick is a frame rather than a simple stick	
RM09	stick is a T-section frame	
RM10	stick is an I-section frame	
RM11	stick consists of two rods attached to the loom frame	
RM12	stick is fixed into vertical loom frame	
RM13	stick is fixed into horizontal loom frame	
RM14	stick is attached to a cord or bar, to pull it down to assist in opening natural shed	
RM15	stick cord is attached to a foot treadle	
RM16	across shed stick to prevent it falling out	
RM17	passes through shed stick	
RM18	stick in two halves with gap between	
RM19	stick has a narrow rod (removable) across the top	
RM20	depression stick: placed on top of warp, just behind shed stick (used with shed stick when raising heddle shed)	
RM21	depression stick is attached to the frame via cords	
RM22	depression stick is fixed into holes in the loom frame	
RM23	open rods for the patterning permanently, to assist with lifting subsets of the warp (for warp or for weft patterning)	
RM24	stick just behind main heddle, to raise warp yarns independently of ground warp	
RM25	sticks just behind main heddle, one in upper layer of warp, other in lower layer of warp (referring to natural shed division). These two sticks can be pulled forward over the natural shed stick to open additional sheds.	
RM26	e types associated with ground weave (twills etc)	
RM27	e types associated with warp patterning	
RM28	e types associated with supplementary weft patterning	
RM29	pattern sticks for warp patterning, behind main heddle	
RM30	if pattern is to be used only for patterning behind the main heddle, to mark out and save pattern sheds on a temporary basis (usually inserted in sequence and then removed in reverse order)	
RM31	n rods are inserted as weaving progresses, then removed in reverse order to make symmetrical design	

RA03	rods are inserted all together before weaving begins, removed as weft insertion progresses	
RA04	rods are removed and re-inserted at the back of the group after each weft insertion	
RA05	temporary pattern rods are used for warp patterning	
RA06	temporary pattern rods are used for weft patterning	
PR01	in which heddles for pattern sheds: pattern is recorded via the order of the heddles (either loose in warp or suspended)	
PR02	heddles are located in front of ground weave heddles, i.e. nearer to weaver (if coded '0', indicates pattern heddles are behind ground weave heddles)	
PR04	integrated pattern stick or string recording system (a heddle system that includes a set sticks embedded in strings that directly define a sequence of pattern sheds and forms part of the loom structure)	
PR05	resting on the warp between the pattern sheds, used to help separate the two sets of sheds	
PR06	sticks (or strings replacing sticks) are held in a flat heddle system that extends above and below the warp: strings or sticks are transferred from above to below or vice versa	
PR07	ional loops inserted between the pattern sticks loop and the warp, raising the patterning arrangement above the warp and allowing multiple connections to the warp (pattern repeats) in some cases	
PR08	multiple connections from pattern system to warp, allowing pattern repeats	
PR09	the Tower supporting patterning system and drawperson	
PR10	stick system is held in fixed position by being attached to the loom frame	
PR11	sticks or strings are linked to a cord alongside, either by being tied to it in bunches or secured to rings (helps keep the strings in sequence)	
PR12	sticks or strings are held in place by being tied to a vertical wooden frame	
PR12a	sticks are supported above the warp in a pattern heddle	
PR13	sticks are in a circular arrangement above the warp, used in sequence to open shed and then moved from the back to the front of the circular heddle in sequence	
BR01	front and back sheds are used for inserting patterning wefts	
PR15	er-rod inserted into pattern shed to widen it before weft insertion	
PR16	sticks are supported by a lifting system connected to a foot-treadle	
PR17	sticks in a circular arrangement held around a cylindrical drum (e.g. made of basketwork)	
PR18	system is located behind ground weave heddles	
PR19	system is located in front of ground weave heddles (i.e. nearer to the weaver)	
ES01	operating shed-beating and/or shed-drawing applier	
ES02	ple sword beater: flat stick	
ES03	d beater asymmetric with handle (resembles knife or sword)	
ES04	d beater: symmetrical tapering with short handle	
ES05	handled sword beater (handle at each end)	
ES06	nal, free standing rest for sword beater	
ES07	d-like stick, not used for beating but for holding shed open only	
ES08	held comb/rake beater	
PS09	beater (pin or narrow stick used for pressing down wefts)	
PS10	is 'beaten' with the fingers	
PS11	is positioned by grasping opposite sides of the warp shed and pulling them	
PS12	for keeping warp yarns aligned (e.g. for making ikat)	

W001	pick stick/ warp fingers, manually or other tool is used	
PM002	pick stick: pointed stick(s) similar to sword used for opening up pattern sheds	
W003	patterning inserted using pickup stick	
SM004	supplementary weft inserted using pickup stick	
EM005	discontinuous supplementary weft inserted using pickup stick	
DM006	continuous supplementary weft inserted using pickup stick	
TE007	temple with strip lining device at the leading edge of the web, to help maintain constant web width and straight selvages	
TE008	temple type A: simple rod with needles or points at each end	fixed width
TE009	temple type B: adjustable rod in two parts, pins at the ends and right angles to the rod are pressed into the web	
TE010	temple type C: bow shaped temple that is attached above or below the web	
TE011	temple is above the web	
TE012	temple is below the web	
SP013	spaced coil rods and other warp spacers	
SP014	spaced thread across warp, near warp beam (or warp ends furthest from cloth beam), to keep warp yarns separated and in order	
SP015	spaced spacer consisting of bar with grooves in to keep warp evenly spaced and maintain width	
BE016	reed beater	
BE017	beater with heavy weight frame around it	
BE018	beater is suspended, via cords or bars	
BE019	beater is set into a rigid swinging bar, suspended overhead, sometimes called a sley	
BE020	beater is attached to a horizontal bar (as well as being suspended overhead) attached to a rod that pivots	
BE021	beater bar pivot is at the base of the loom	
BE022	beater bar pivot point is elevated	
W023	additional sticks added near warp beam to maintain tension in the warp selectively	
W024	inserted near beginning of weaving to keep weft in place	
W025	rod of twining added near the beginning of the weaving to keep weft in place	
Y026	inserted by hand as a small ball or butterfly, without use of shuttle	
Y027	inserted with a hook (usually used for discontinuous supplementary weft)	
S028	simple shuttle (including types embedded in housings)	
Y029	wound on stick in circular fashion	
Y030	wound lengthways on a long stick	
Y031	wound lengthways on elongated H-shaped shuttle	
H032	hollow bamboo tube with yarn loosely coiled inside (no centre spindle)	
B033	rod shaped shuttle	
B034	beater shuttle (combines yarn insertion and beating), with two handles [beater function also listed in sword-beater section]	
Y035	peach-shaped compound shuttle	
Y036	peach-shaped compound shuttle: centre bobbin	
Y037	peach-shaped compound shuttle: cover	
Y038	peach-shaped compound shuttle: with pointed cone at one end, made of hardwood or ivory or similar	
B039	rod shaped shuttle, with bobbin in the centre (mainly used for supplementary weft, combining pickup stick and shuttle functions)	

5.3 Phylogenetic methods and parameters

The methods we have employed are tools that we have found to be of practical value when dealing with complex data. At the most basic level both tools that we have used (Neighornet and Bayesian phylogenetic analysis) are ways of grouping ‘like with like’, thus suggesting hypotheses about the relationships between the looms we have studied.

Importantly, these methods do not replace traditional, ‘classical’ ways of thinking, they are an adjunct to them, and a first step. As a second step we have brought to bear our practical knowledge of weaving, combined with ethnographic, historical and archaeological data (summarized in Chapters 1-3) to critically evaluate the output of the mathematical methods and to build a complete picture.

Quantitative methods offer a couple of important benefits, over and above the use of ‘classical’ approaches alone. Firstly, they are helpful when dealing with very complex data: in this case many thousands of individual pieces of information about the characteristics of looms. Secondly, they are able to give equal weight to all types of information, something which is very difficult to achieve by any other means. We do not claim that these approaches are wholly ‘objective’, since they depend on the quality of our (subjective) classification of the features (characters) of looms. Over the long haul, however, when considering thousands of data points, they do offer something that is closer to objectivity than trying to spot patterns in data purely ‘by inspection’, with the attendant possibilities of bias.

Data

Our dataset consists of a matrix of taxa (looms) and characters (features of the looms, coded as present or absent). This dataset was assembled ‘by hand’ over a period of several years, using a combination of fieldwork at first hand and other sources (listed above). This large table was then converted to the Nexus file format using the Mesquite software package.¹ The Nexus file was then analysed using two different methods.

Neighornet Plot

This graphical presentation of the data was prepared using the SplitsTree software.²

Bayesian Phylogenetic Tree

The best-fit tree was determined via a Bayesian Markov-Chain Monte-Carlo (MCMC) search, using the MrBayes software.³ ‘Flat’ prior

assumptions were used (in other words, no prior assumptions: all tree topologies were regarded as equally-likely, a priori). Characters were allowed to change at different rates, using a gamma distribution modelled with six-steps. Phylogenetically-uninformative characters were excluded, leaving 48 taxa and 230 phylogenetically-informative characters.

Standard methods were used for the MCMC search : four chains, three 'hot' and one 'cold', with two analyses run in parallel to assess convergence and a total of 20 million chain steps, sampled every 1000 steps. The first 5 million steps were discarded (burn-in) to ensure that the MCMC samples were taken from the maximum-probability region of tree space. Convergence scores between the two separate analysis indicated that convergence on similar best-fit trees was obtained relatively quickly.

The resulting samples of best-fit trees were summarized by calculating a consensus tree using Mesquite. This means that the final consensus tree displays clades that appear in 70% or more of the sample of best-fit trees, excluding clades that appear less likely. This consensus tree is the one illustrated in the text. The retention index (RI) for the consensus tree was calculated using Mesquite.

Ancestral States

Ancestral states were calculated based on the Bayesian consensus tree, using a maximum likelihood model, as implemented in the Mesquite software. This calculates the probability that a given feature of a loom (character) was present at every node (ancestral loom) in the tree.

This table on the following two pages lists the key results of this analysis. The ancestral looms are labeled by the letters A, B, C ..., corresponding to looms on the phylogenetic tree in Part III. The probabilities of a given character (feature) being present are given by the percentages in the table. For example, the probability that the original ancestor of all Asian looms (A) had a continuous, circular warp is 100% (characters WC01 and WC02 in the table). Percentages are given to the nearest 10%. Blank cells indicate probabilities of less than 10%. For the schematic reconstructions of ancestral looms in Part III, ancestral features with a probability of 50% or greater were used.

[illegible]

HC09	Double sided heddles pull in both directions (warp passes through loop or eye at the centre of the heddle)								50%	100%
HC11	One or two pair(s) of double sided heddles are joined together								50%	100%
HP01	Additional simple heddles (in addition to ground-weave heddles) for supplementary weft, or warp patterning or rills	40%	30%	10%		10%			10%	
HP04	Multiple (3 or more) additional heddles for complex warp or weft patterning	20%	10%							
HP10	Heddle type: movable simple heddle raised directly by hand, no external support (ie not linked to frame or other support)	100%	100%							
HC02	Heddle: wound continuous heddle	100%	100%	100%	100%	100%	100%	100%	100%	100%
HC03	Heddle winding: spiral continuous	10%	20%	100%	100%	100%	100%	100%	100%	100%
HC04	Heddle winding: alternate continuous		50%							
HC09	Additional rods tied tightly on top of heddle rod to secure the heddle threads, control spacing, may also act as handle	10%	10%	100%	100%	100%	100%	100%	100%	100%
HC10	Heddle is wound around upper rod of a pair			100%	100%	100%	100%	100%	100%	100%
HC11	Heddle is wound around lower rod of a pair					10%				
HR04	Foot operated system for raising heddle			20%	100%	100%	100%	100%	100%	100%
HR05	Heddle is supported by a two-pronged rocker that is attached to the upright part of the back projection is attached to a cord to the weaver's foot allowing it to be raised by depressing the cord						100%	100%		
HR06	Treadle(s) are loops of cord around the weaver's foot							100%		
HR07	Treadle(s) are sticks oriented in same direction as warp								20%	90%
HR12	Treadles are sticks oriented at right angles to warp					90%				
HR13	Heddles suspended overhead on frame or ceiling or other support								100%	100%
HR22	Uprights-and-rocker bar system for supporting heddle					100%				
RR06	Shed stick (inserted into warp), sometimes called shed roll, remains natural shed for ground weft insertion	100%	100%	100%	100%	100%	100%	100%	10%	
RR07	Overized shed stick (cylinder or block or similar around 6cm or more in diameter, holding wide aperture open)					10%	10%	70%		
RR08	Shed stick is a frame rather than a simple stick						10%	50%		
RR13	Shed stick is fixed into loom frame					100%				
RR20	Warp depression stick: placed on top of warp, just behind shed stick (used with shed stick when raising heddle shed)		20%	40%	60%	90%	100%	100%	10%	
FS01	Sword beater-shed-opener and/or related shed-opener	100%	100%	100%	100%	100%	100%	100%	70%	30%
FS02	Simple sword beater: flat stick	100%	100%	70%						
FS05	Two-handed sword beater (handle at each end)			40%	70%	90%	100%	100%	50%	
FM02	Pickup stick: pointed stick(s) used for opening up pattern sheds			20%	20%	10%	30%	90%	10%	
TP01	Temple: tensioning strip inserted near the leading edge of the web to help maintain constant web width and straight selvages	20%	40%	30%	30%	60%	20%	30%	20%	10%
TP04	Temple type C: bow shaped temple			30%	20%	70%	20%	20%	10%	
TP05	Temple is above the web		10%							
TP06	Temple is below the web			10%	10%	40%				
SP01	Coil reed	50%								
SP04	Reed/ reed beater			100%	100%	100%	100%	100%	100%	100%
SP05	Reed beater with heavy weight frame around it								20%	100%
SP06	Reed beater is suspended, via cords or bars								20%	100%
YS02	Yarn inserted by hand as a small ball or butterfly (no shuttle)	20%	30%	40%	40%	30%	40%	30%	30%	10%
YS03	Yarn inserted with a hook					20%				
YS05	Simple shuttle (excluding types embedded in housings)	80%	100%	100%	100%	100%	100%	100%	100%	100%
YS06	Yarn wound on stick in circular fashion	10%	90%	100%	100%	100%	100%	150%	100%	100%
YS10	Box-shaped shuttle			10%	10%	10%			40%	100%
YS11	Beater shuttle (combines yarn insertion and beating)			30%	40%	70%	60%	70%	30%	

1 Maddison and Maddison [2011]

2 Huson and Bryant [2006]

3 Huelsenbeck and Ronquist [2001]

Glossary (English)

Ancestral state: an estimate of whether a particular feature or character (qv) was present or not in an ancestral form. In the case of the present study this means a feature of an ancestral loom.

Back strap: A strap around the weaver's waist, used for tensioning body-tensioned looms (qv). *Bangyaodai* 绑腰带, *fupi* 幅皮 (archaic; Ming dyn.).

Backstrap loom: see body tensioned loom. *Yaoji* 腰机.

Bamboo barrel (Maonan): A component of some compound heddle looms: an open cylinder made of bamboo sticks and strips, with a diameter varying between 40 and 60 centimetres, around which pattern rods are held in sequence, forming the *huaben* 花本. *Zhutong* 竹桶.

Bamboo cage or basket ('pig basket'): A component of some compound heddle looms: a closed cylinder made of bamboo sticks and strips, with a diameter varying between 40 and 60 centimetres, around which pattern rods are held in sequence, forming the *huaben* 花本. *Zhulong* 竹笼 or 猪笼 (Zhuang Binyang).

Bast: the soft inner part of the bark of some plants (such as hemp and ramie), from which fibres can be extracted for making into yarn. *Shupi* 树皮.

Bidirectional heddle: a heddle that has strings attached both above and below the warp, that can pull warps both upwards and downwards. *Shuangquan xianzeng* 双圈线综.

Beater: a wooden stick, usually with one sharp edge, used to beat-in weft. Synonyms: sword-beater, weaver's sword. *Budao* 布刀 or *daweidao* 打纬刀.

Beater shuttle: a heavy shuttle with a sharp edge that can also be used to beat-in weft as well as insert it. *Zhuang you weixian de daweidao* 装有纬线的打纬刀 or *juyou dawei gongneng de suozi* 具有打纬功能的梭子.

Bobbin: a stick with yarn wrapped around, used for inserting weft. *Yuzi* 纣子, *di* 橛.

Body tensioned loom: a loom which is tensioned by the weaver's body, generally via a backstrap around the weaver's waist. Body tensioned looms include both frame and non-frame types. Synonyms: back-tension loom, back tensioned loom, backstrap loom. *Yaoji* 腰机.

Brocade: cloth with multi-coloured designs that are added during weaving. May be warp-faced or weft-faced. *Jin* 锦, *wahua zhiwu* 挖花织物; *zhihua* 织花 (to weave brocade; term used by weavers in Southwest China).

Box-frame: a frame resembling the sides of a box: four pillars with a square frame around the top and a square frame below holding the warp beam and cloth beam.

Cantilever frame: a type of frame loom characterised by heddles and/or reed that are supported by a cantilever structure, attached to posts at the back of the loom. \ *Daishenbi dezhiijia* 带伸臂的织机架.

Character: a feature of a culture or artefact that can be identified across multiple cultures, and thus may be used as a marker for the purposes of phylogenetic analysis. *Canshu* 参数.

Coil rod: a rod around which every warp yarn is wrapped once. This rod serves to keep the warp yarns aligned and in order. Mainly found in simple back-tensioned looms that lack a reed. *Dingfugan* 定幅杆.

Cloth beam/cloth roll: the axle/beam on which the woven fabric is wound. Usually positioned directly in front of the weaver. Synonym: breast beam. *Juanbuzhou* 卷布轴, *zhizhou* 织轴, *jintouzhou* 锦头轴, *juanquju* 卷取具.

Complex pattern heddle system: mechanism consisting of heddle strings (leashes, loops) with patterning rods embedded in it, used to raise selected warps in sequence. Usually used to create weft-faced compound tabby. *Huaben* 花本. In the Chinese Drawloom it is called the *huaben xitong* 花本系统 or *tihuazeng* 提花综.

Continuous supplementary weft: supplementary weft (qv) that extends from selvedge to selvedge. *Quantong huawei* 全通花纬; *chuanrao* 穿绕 describes the technique of adding continuous supplementary wefts.

Consensus tree: see Phylogenetic tree. *Gongtongshu* 共同树.

Counter shed: one of two sheds used in making plain tabby weave, the other being the natural shed. The counter shed is usually opened by pulling up a lower layer of warp using a heddle. *Xiangfan suokou* 相反梭口, *jiaohuan suokou* 交换梭口.

Damask: silk fabric that is woven with yarn of one colour only, but which is patterned with textures created by contrasting weaves. The correct translation is *ling* 绫, though *qi* 绮 is often improperly

translated as 'damask'.

Discontinuous supplementary weft: supplementary weft (q.v.) that extends across just a few warps, i.e. does not stretch from selvedge to selvedge. *Duanwei* 断纬; *duansewei* 断色纬; *paosuo* 抛梭 describes the technique of adding discontinuous supplementary wefts.

Discontinuous supplementary weft tabby compound weave: textile with a tabby foundation, decorated with discontinuous supplementary wefts (q.v.). *Tongjin duansewei wahua zhiwu* 通经断色纬挖花织物.

Drawboy (or girl): *yehuagong* 曳花工.

Drawloom: a loom with a flexible patterning device that allows warp yarns to be lifted independently (or in groups) in any combination. The patterning device is normally worked by a second person (drawperson) in addition to the weaver. *Shuzeng zhiji* 束综织机, *hualou tihuaji* 花楼提花机.

Dye: a soluble colouring material (as opposed to a pigment). *Ranliao* 染料.

Evolutionary tree: see phylogenetic tree. *Bianhua shu* 变化树.

Externally-braced back-tensioned loom: *xuanzhou yaoji* 悬轴腰机.

Felt: a non-woven textile made of randomly oriented fibres pressed together. *Zhan* 毡.

Fibre: the base material from which yarn is twisted or spun. *Xianwei* 纤维.

Floating weft: see weft float. *Fuwei* 浮纬.

Floss silk: silk yarn that is loose and untwisted, sometimes used for patterning wefts because of its glossiness and bulk. *Beng* 絳.

Foot (pedal) activated heddle: a heddle raised by pressing down on a pedal. *Nietizeng* 蹑提综.

Foot-braced back-tensioned loom: *zudeng yaoji* 足蹬腰机.

Frame loom: a loom with a rigid frame around it.

Gauze: a textile with an open structure, with wide gaps between the warp and weft. *Luo* 罗, 罗, *sha* 纱. Some special weave structures with crossed warps are used to create gauze.

Ground pattern: a repeating design that covers an entire fabric. This term is usually used when there are additional localized motifs superimposed on the ground pattern. *Diwen* 地纹 (Maonan).

Ground weft (tabby weft): weft of uniform colour that plays no role in the patterning, for example in a supplementary weft compound tabby weave. *Pingwenwei* 平纹纬, *diwei* 地纬, *jiawei* 夹纬.

Heddle: A set of leashes (loops of yarn) attached to warps, used for opening a shed for the insertion of weft. A simple heddle consists of a stick with loops of thread that can open one type of shed. *Zeng* 综.

Heddle string/leash/loop: a single loop of a heddle, attached to a warp and used for lifting it up for weft insertion. *Zengsheng* 综绳.

Hemp: (*Cannabis sativa*) plant from which hemp fibre can be extracted for making textiles, common in Yunnan. *Ma* 麻.

Hook: a tool, made of metal, wood or bone, used to insert supplementary wefts by hand, used by the Tujia, Songtao Miao, Tongdao Dong, and Zhaoxing Miao. *Tiaohua goudao* 挑花勾刀.

Ikat: *shaxian zajibu* 纱线扎染布

Insert (e.g. insert supplementary weft) *Charu* 插入.

Kosu/kesi: silk tapestry. *Kesi* 缙丝, 刻丝.

Kudzu or ko-hemp (*Pueraria* sp.). A type of bast fibre made from the wild kudzu vine. *Ge* 葛; textile woven of kudzu: *zhou* 绸, 绉.

Lease rod: see shed stick/rod. *Fenjingbang* 分经棒, *jingsha yigun* 经纱导棍.

Leash: see heddle string. *Zengsheng* 综绳.

Loom frame: *jijia* 机架.

Man-made fibre: *Huaxue xianwei* 化学纤维 or *renzao xianwei* 人造纤维; weavers in Southwest China sometimes call synthetic yarn *xianweixian* 纤维线.

Natural shed: one of two sheds used for making plain tabby fabrics, the other opening being called the 'counter shed'. On simple looms the natural shed held open with a stick (shed stick or shed rod). *Ziransuokou* 自然梭口.

Nettle: sometimes used in the past as a source of bast fibre for weaving. *Qianma* 荨麻.

Node: a branch (bifurcation) in a phylogenetic tree (q.v.) representing an ancestral form. *Jiedian* 节点.

Oblique loom: A term used by Chinese writers to describe several different traditional looms, generally types with a fixed cloth beam. *Xiezhi* 斜织机.

Parrot/Parakeet: see rocker heddle. *Yingge* 鹦哥.

Pattern heddle: see complex heddle system

Pattern repeat: a decorative sequence, a repeated pattern usually produced by a series of heddles or by a compound heddle. *Huawen xunhuan* 花纹循环, *tu'an xunhuan* 图案循环 or *zuzhi xunhuan* 组织循环.

Pattern rod/stick:

1. Sticks inserted directly into the warp, to save shed openings for weft insertion. Generally used to save pattern sheds on a temporary basis. *Tiaohuagan* 挑花杆.
2. Sticks, usually made of bamboo, held permanently in a compound heddle patterning system, used for saving a series of shed openings for patterning purposes. *Bianhuazhu* 编花竹, *wenbang* 纹棒, *wengan* 纹杆, *zhugan* 竹竿, *zhuzhen* 竹针 or *zhugun* 竹棍。

Both types of rod are usually called ‘pattern stick’ or ‘pattern rod’, though they are fundamentally different in terms of placement and usage.

Patterning tower: a characteristic feature of a Chinese Drawloom (q.v.); a framework built above the warp that supports the patterning system and the drawperson who operates it. *Hualou* 花楼

Patterning weft: see supplementary weft.

Pedal, treadle: a treadle worked by the weaver, usually used to lift a heddle. The ensemble of treadle plus heddle is called a shaft. *Taban* 踏板, *jiaoban* 脚板, *qianting* 牵挺 (archaic), *nie* 蹀.

Phylogeny, Phylogenetic tree: a branching line of descent, that shows how a set of taxa (such as species, cultures, traditions, languages or looms) represented by the branches of the tree are descended from a common ancestor, situated at the root. *Qinxiang fenxi de shuzhuang fenxitu* 亲像分析的树状分析图. The results of phylogenetic analysis are commonly expressed in the form of a ‘consensus tree’, representing the average of a set of trees that are most likely to represent reality.

Phylogenetic analysis: the process of deducing a phylogenetic tree or other evolutionary relationships between taxa, using systematic methods.

Pig-basket, pig-basket loom: see bamboo cage.

Pickup stick: a pointed stick used by a weaver for selecting individual warps, prior to inserting a pattern weft. Some weavers use a hook (q.v.) for the same purpose.

Pigment: a colouring material consisting of insoluble particles, for example mineral colours. *Sesu* 色素. Compare ‘dye’.

Plied yarn: yarn consisting of several strands, usually (but not always) twisted together. *Guxian* 股线, for example: *sangusixian* 三股丝线 (three-ply silk yarn).

Ramie (*Boehmeria nivea*): a plant from the nettle family traditionally used as a source of bast fibre for weaving. *Zhu* 紵, 苧, *zhuma* 苧麻, in

Guizhou *jia ma* 家麻, *yuan ma* 园麻. Sometimes referred to as *Urtica nivea* in older texts.

Reed: a device resembling a comb, used for keeping warp yarns in sequence and evenly spaced. Usually positioned near the weaver, just in front of the leading edge of the fabric being woven. In some cases the reed is also used to beat-in the weft. *Kou* 筊 or *dingfukou* 定幅筊.

Rep/Reps weave: weave forming a rib effect on the face of the textile; in this book 'reps' refers to warp-wise ribbing effect created by weft float. *Weichongping* 纬重平.

Rice starch: traditionally applied to warp yarns, to improve smoothness and strength. *Mijiang* 米浆.

Rocker-heddle: a wooden bar attached to a pivot, which supports a heddle on one side and is attached to a cord (and thence to a treadle) on the other.

A characteristic short wooden rocker used for raising the heddle in some traditional looms is called a 'parrot'. *Yingge* 鹦哥, so named because it is often shaped like a bird or fish (e.g. looms of the Zhuang in Napo, Tujia).

Other traditional looms use a long Y or U-shaped rocker, attached to the heddle at the wide end and to a cord attached to a foot-loop at the narrow end at the back of the loom.

Satin weave: a ground-weave structure with long warp/weft floats, producing a glossy effect. *Duan* 缎 or *duanwen* 缎纹.

Selvedge (selvage): the long edges of a woven textile that run parallel to the warp, created by turning the weft at the edge. *Bubian* 布边.

Shaft (or harness): this term is used variously in textile literature to mean a heddle or the mechanism of heddle plus lifting device and treadle. In this book we use this term to mean the entire mechanism. *Pianzeng* 片综, *zenggan* 综杆, *nietizeng* 蹊提综.

Shed: a temporary opening between warps, made during the weaving process for the insertion of weft. *Suokou* 梭口.

Shed mechanism: *kaikou jigou* 开口机构.

Shed stick/rod: a stick used to save (hold open) a shed (opening) in the warp for weft insertion. We reserve this term for the stick used to hold open the natural shed, used in simpler looms in combination with a heddle to open the natural shed and counter-shed respectively for making plain tabby groundweave. *Jingsha yigun* 经纱导棍, *fenjingju* 分经具. Zhuang, Maonan, Buyi: *kaikougan* 开口杆, or *kaikou zhutong* 开口竹筒 in case of bamboo tubes.

Shuttle: tool used to insert the weft during weaving. *Suozhi* 梭子 or *zhu* 杼.

Spinning/spun yarn: the process by which a fluffy fibre such as cotton or wool is simultaneously spun and drawn out into a long thread (compare: twisting). *Fang* 纺

Spool: see Bobbin.

Stepping Stone loom: a complex frame loom in which both the ground-weave structure and patterning is accomplished by means of a set of shafts (heddles raised by treadles). Since the loom has a large number of treadles these are equipped with blocks to make them easier for the weaver to identify. The blocks resemble stepping stones, hence the name of the loom. *Dingqiaozhiji* 丁桥织机.

Supplementary weft: weft used to form the pattern on a textile. Normally present in addition to a ground weft. *Huawei* 花纬, *huawenwei* 花纹纬, *jiasewei* 夹色纬, *wenwei* 纹纬.

Sword/sword-beater: see beater.

Tabby, plain tabby: the simplest regular weave structure, in which warp and weft alternate above and below each other in strict sequence. *Pingwen zuzhi* 平纹组织.

Taxon (pl. taxa): a term used in phylogenetic analysis to define the basic unit of study, such as a species, culture or tradition. *Fenlei danwei* 分类单位.

Tension: (e.g. warp tension) *zhangli* 张力.

Textile structure: *zhiwu zuzhi jiegou* 织物组织结构.

Thread (yarn): *sha* 纱, *xian* 线.

Thread (yarn) count: the number of warps or wefts per unit length (generally one centimetre). *Midu* 密度; , *jingmi* 经密 for warps, *weimi* 纬密 for wefts.

Torsion: the direction of twist (denoted S or Z) of a spun thread or yarns plied together. *Niandu* 捻度, *jianian* 加捻.

Treadle: a bar pressed by the foot, used (for example) to raise a heddle or to depress a shed stick during weaving. *Taban* 踏板, *jiaoban* 脚板, *nie* 蹀, *qianting* 牵挺 (archaic).

Tubes-and-layers mechanism: a system used to simplify the insertion of pattern wefts, employed by some Miao, Yao and Tujia weavers in Southwest China. This system separates the warp into several layers via tubes that are permanently inserted in the warp, presenting a subset of the warp to the weaver for further selection of warps for the insertion of coloured pattern wefts.

Twill weave: a type of ground-weave characterized by diagonal ‘ribs’

formed by wefts/warps displaced relative to each other at regular intervals. There are many different types of twill weave (diamond, herring-bone etc.). *Xiwen* 斜纹.

Twist: see torsion.

Twisting: technique for processing bast fibres (e.g. hemp, ramie) into yarn by twisting them lightly. Twisting is distinct from spinning, which is suitable only for fluffy fibres such as cotton and wool. *Ji* 绩.

‘Venetian Blind’: colloquial term for a Complex Pattern Heddle consisting of a vertical curtain of heddle loops with bamboo sticks embedded in it, used to pull selected warps in order to produce a weft-faced compound tabby. Found on some Daic looms (Dai, Tai). *Lianzeng* 帘综, *lianshizeng* 帘式综, *zhulian* 竹帘.

Warp: the threads that make up the foundation of a woven textile, into which the weft is inserted. Ch: *jing* 经 or *jingsha* 经沙.

Warp axle/beam: the beam to which the warp yarns are attached and on which the warp yarns are wound when weaving commences. *Jingzhou* 经轴 or *juanjingzhou* 卷经轴, *sheng* 胜 (archaic), *di* 橧 (archaic).

Warp-faced compound tabby: weave structures based on warp-patterned fabric, in which the warp is the most prominent component. Based on a simple tabby structure and using the warp as the dominant patterning element. *Pingwen jingzhong zuzhi* 平纹经重组织.

Warp depression stick/bar: a bar that is positioned on top of the warp, near to the heddle. When the heddle is raised the bar is pulled downwards (either by hand or by a cord). This helps to keep the upper layer stationary while the lower layer is pulled up through it by the heddle, opening the counter-shed.

Warp patterned fabric: fabric in which coloured warps are the dominant patterning elements. *Xianjinghua zhiwu* 显经花织物.

Weave: (v) *zhi* 织, *beng* 絍 (archaic); (n) *zuzhi* 组织 (type of woven structure). *Weaving:* (n) *zhiwu* 织物, *fangzhipin* 纺织品.

Weft, pick: *wei* 纬 or *weisha* 纬纱.

Weft-faced compound tabby: weave structures based on plain tabby weave in which the weft is the most prominent component. *Weijin* 纬锦, *pingwen weijin* 平纹纬锦, *pingwen weihua zhiwu* 平纹纬花织物, *pingwen weizhong zuzhi* 平纹纬重组织, *pingdi weihua zhiwu* 平地纬花织物 or *xianweihua zuzhi* 显纬花组织.

Weft float: a weft that passes over more than one warp, generally a patterning element of a textile. *Fuwei* 浮纬, *weifuxian* 纬浮线, *mingwei* 明纬.

Width of a textile (including selvedge): *fukuan* 幅宽.

Yarn: *sha* 纱, *xian* 线.

Y-rocker: a type of rocker-heddle (q.v.), characterized by a long Y-shaped or U-shaped rocker, supporting a heddle at the wide end and attached to a cord and thence to a treadle at the narrow end, situated at the back of the loom.

Glossary (Chinese)

Anfu 接幅: ‘assembling panels’, as most brocade looms in Southwest China can only produce narrow widths, several panels are usually sewn together in order to make wedding bedcovers and other items.

Bangyaodai 绑腰带: back strap.

Beiwo 被卧: another name for a bedcover or quilt, used by the Buyi people (Xingyi).

Beng 絣: floss silk; to weave (archaic).

Benpu: embroidered model for woven patterns used by the Geyi Miao.

Bianhuaazhu 编花竹: Bamboo sticks/rods forming the *huaben* placed on the *zhulong* or *zhutong* (patterning system of the Zhuang and Maonan peoples). Also called *zhuzhen* (竹针).

Bubian 布边: selvage, selvedge.

Budao 布刀: beater, see *daweidao*.

Cansi zouban 蚕丝走板: literally ‘silkworm walking the board’; silk felt (see Appendix 3).

Chuanrao 穿绕: continuous supplementary weft patterned weaving.

Chuanzeng 穿综: entering, threading: process of introducing the warps in the heddles while setting up the loom.

Dadiantang 打靛塘: large circular earth basin where indigo paste is produced by fermentation.

Dama 大麻: hemp.

Danquan xianzeng 单圈线综: a ‘single loop thread heddle’, which can pull a warp thread in one direction only.

Dawei 打纬: to beat the weft in.

Daweidao 打纬刀: wooden beater, sword, used to beat the weft in. Another type includes a built-in spool with ground weft yarn, this is then called a beater shuttle, in Chinese: *zhuangyou weixian de daweidao* 装有纬线的打纬刀.

Di 橧: usually a bobbin, but also used in the past to designate the warp beam.

Dibu 地布: background field of a woven pattern.

Dingfugan 定幅杆: coil rod.

Dingfukou 定幅箴: reed, used to maintain even warp separation during weaving, usually made of thin bamboo blades fixed in a wooden frame.

Diwei 地纬: ground weft.

Diwen 地纹: ground pattern.

Douji 陡机: Dong name for a type of brocade loom similar to the type used by the Tujia.

Duan 缎: satin.

Duanwei 断纬: discontinuous supplementary weft; brocading weft.

Fukuan 幅宽: width of a textile, including two selvages.

Fupi 幅皮: archaic name (Ming dynasty) for the strap on a back strap loom.

Fuwei 浮纬: continuous ‘floating’ supplementary weft.

Gang-a-mao: Miao language; silk felt; known in Chinese as *cansi zouban* 蚕丝走板; (see Appendix 3).

Ge 葛: ko-hemp or kudzu (*Pueraria lobata* or *thunbergiana*). Poplin.

Gen 根: the finest unit of silk yarn or filament.

Gu 股: ply (silk: a *gu* is composed of several *gen*); a silk thread made of only one *gu* (ie not plied) is called a *dangu* 单股; if two *gu* are plied to form the thread then it is called *shuanggu* 双股.

Guxian 股线: plied yarn; ex: *sangu sixian* 三股丝线 (3-ply silk thread).

Honghua 红花 or *zanghonghua* 藏红花: *Carthamus tinctorius*, saffron, sometimes used as a red dyestuff.

Hongmu 红木: see *Su* 苏.

Huaben 花本 or *huaban* 花板: compound heddle patterning system (for example on a Maonan or Zhuang drum loom).

Huabu 花部: the part of brocade where the pattern is apparent (in contrast to the background).

Huaihua 槐花: *Sophora japonica*, used as a yellow dyestuff.

Hualou tihuaqi 花楼提花机: Chinese Drawloom with pattern tower.

Huangzhizi 黄栀子: *Gardenia jasmenoides*, used as a yellow dyestuff.

Huawen 花纹: pattern.

Huawenwei 花纹纬: supplementary weft forming the pattern on the top/front face of the brocade.

Huawenweixün 花纹纬循: supplementary weft pattern repeat.

Huanzengji 环综机: literally ‘cyclic heddles loom’; the term is applied usually to the Dai ‘Venetian Blind’ patterning system (see Chapter 5, Section 5.28) but can also be used for other Daic looms such as the Dong, Zhuang or Maonan.

Huocao 火草: *Gerbera delavayi*, also known as *goubao dadingcao* (钩苞大丁草), its fibres were used until recently in Yunnan, notably by the Zhuang people in Wenshan to weave a rough, thick, off-white tabby cloth for bedcovers.

Huoma 火麻: a term for ramie, used in Qiandongnan (Southeast Guizhou).

Ji 绩: twisting, spinning (used mostly for hemp fibres).

Jiama 家麻: a term for ramie in Guizhou.

Jianghuang 姜黄: *Curcuma longa*, turmeric, sometimes used as a yellow dyestuff.

Jianian 加捻: twist or torsion of a yarn, S or Z.

Jiaoban 脚板: treadle.

Jiaosha 绞纱: skein.

Jiaotaban 脚踏板: treadle, also *jiaoban*

Jiasewei 夹色纬: coloured supplementary weft.

Jiawei 夹纬: ground weft.

Jiegou 结构: texture, structure.

Jijia 机架: loom frame.

Jin 锦: brocade; weaving with designs of different colours.

Jing 经 or *jingsha* (经纱): warp, end.

Jingduanwei 经短纬: tapestry weave (*kesi*, kilim), woven using only one set of discontinuous wefts alternating with one set of warps.

Jingmi 经密: warp yarn count.

Jingsha yigun 经纱导棍: shed stick/rod, lease rod or any tool separating the warps in two tabby layers.

Jingzhou 经轴 or *juanjingzhou* 卷经轴: warp axle/beam.

Jintouzhou 锦头轴: cloth beam.

Juanbuzhou 卷布轴: cloth roll, cloth beam, breast beam.

Juzhiji 踞织机: Horizontal ground frameless loom. The weaver sits on the floor or on a low stool; the warp tension is obtained between the back of the weaver (therefore it is also sometimes called *yaoji*). The warp beam is supported by the weaver’s feet or by two posts driven into the ground.

Kaikou 开口: shed, shed opening.

Kaikougan 开口杆: shed stick (term used by the Buyi, the Maonan and the Zhuang).

Kaikou zhutong 开口竹筒: bamboo tube placed in the patterning shed by the Zhuang and the Maonan on the bamboo cage or drum loom.

Kesi 绉丝: kosu.

Kou 箬: reed.

Landian 蓝靛: generic term for indigo, regardless of which plant it is extracted from.

Laomuhua 老母花: lit. ‘Old mother’s motif’; sampler of various patterns embroidered on coarse white cotton cloth, used by the weaver as a model to count warps while inserting supplementary wefts with a hook (Miao from Shidong, Gedong, Geyi). It is called *muzihua* 母子花 by the Miao of Yarong and *benpu* by the Geyi Miao.

Lasha 拉纱 or *laxian* 拉线: literally ‘pulling the yarns’; first step in the process of ‘warping’ the loom, preparation of warps prior to their setting up on the loom. For most weaving groups in the Southwest, a traditional taboo prohibits this activity during the first lunar month.

Lianzeng 帘综 or *lianshizeng* 帘式综: literally ‘curtain heddles’, a type of bamboo rods patterning system used by Daic people (Dai, Dong). Sometimes translated as ‘Venetian Blind’, in the case of the Dai loom of Yunnan and similar Tai looms in Laos and Vietnam. Cf *zhulian*.

Liaolan 蓼蓝: *Polygonum tinctorium*, from which indigo is extracted.

Mang: ramie in the Miao language of West Guizhou.

Mi 糸: silk thread; measurement unit equal to half a *si* 丝; *misì* 糸丝: silk fabric.

Mijiang 米浆, or *mitang* 米汤: rice starch used for the preparation of warp yarns.

Mingwei 明纬: floating weft.

Malan 马蓝: *Strobilanthes cusia*, from which indigo is extracted.

Muhong 木红: see *Su* 苏.

Mulan 木蓝: *Indigofera tinctoria*, from which indigo is extracted.

Mumian 木棉: kapok *Gossampinus malabarica*. Grows widely in South China and Southeast Asia, but rarely (if ever) used to make textiles because of its short fibre length and poor spinnability.

Muzihua 母子花: see *laomuhua*, term used by the Miao weavers of Yarong near Huishui in central Guizhou (摆金镇, 惠水县).

Niandu 捻度: torsion, twist (cf *Jianan*).

Nianxian 捻线: twisted thread.

Nie 镊: ‘needle’ used for weaving (a thin patterning rod inserted directly between the warps).

Nie 蹑: treadle (archaic).

Nietizeng 蹑提综: treadle activated heddle, a shaft.

Paosuo 抛梭: discontinuous supplementary weft patterning technique.

Pianzhu 偏诸: ancient name for *rong* 绒 which generally means velvet but in former times could also mean a thick fabric.

Piguma 屁股麻: ‘bottom hemp’, a term for ramie, used by the Miao of Zhijin in West Guizhou.

Pingdi weihua zhiwu 平地纬花织物: weft patterned tabby.

Pingwen dihuawen zhiwu 平纹底花纹织物: a type of supplementary weft compound tabby (e.g. Zhuang).

Pingwen jingzhong zuzhi 平纹经重组织: warp-faced compound tabby.

Pingwen weijin 平纹纬锦: weft-faced compound tabby.

Pingwen weizhong zuzhi 平纹纬重组织: weft-faced compound tabby.

Pingwenwei 平纹纬: ground weft in a supplementary weft compound tabby. Also called *diwei* 地纬.

Qian 茜 or *qiancao* 茜草: *Rubia cordifolia*, Indian madder.

Qianma 荨麻: nettle, *Boehmeria nivia*, a type of ramie.

Qianting 牵挺: treadle (archaic).

Qingma 苘麻: *Abutilon theophrasti*, Indian mallow or Indian hemp; its fibres were to produce weaving yarn in north Hunan and south Hubei during the eastern Zhou.

Su (苏) also called ‘muhong’ (木红) or ‘hongmu’ (红木): a term used to describe (at least) two different tree species, *Caesalpinia sappan* and *Perilla nankinesis*, used as red dyestuffs.

Shilü 石绿: Green mineral pigment obtained from malachite and used mostly for classical Chinese painting (also seen on Dunhuang murals); it was also used to colour yarns during the Song dynasty in order to weave *kesi*.

Shiqing 石青: Blue mineral pigment obtained from azurite and used mostly for classical Chinese painting (also seen on Dunhuang murals); it was also used to colour yarns during the Song dynasty in order to weave *kesi*.

Sheng 胜: warp beam (archaic).

Shuangquan xianzeng 双圈线综: bidirectional heddle (‘double loop thread heddle’): a heddle that can pull a warp yarn in two directions

(up or down).

Shuangquan xiaokong xianzeng 双圈小孔线综: bidirectional heddle (with two hanks and one eye).

Sijiao 丝胶: silk gum, sericin.

Songlan 菘蓝: *Isatis tinctoria*, from which indigo is extracted.

Suokou 梭口: shed (literally ‘shuttle opening’).

Suozi 梭子: shuttle.

Taban 踏板, **tajiao** 踏脚: treadle, pedal.

Tao 绦: silk ribbon.

Tian 缣: name given to Zhuang brocades paid as tribute during the Ming dynasty.

Tiaohuadao 挑花勾刀: hook used to insert supplementary wefts (Tujia, Miao, Dong).

Tiaohuagan 挑花杆: flat, pointed stick used to insert supplementary wefts.

Tiaohua zhiji 挑花织机: loom on which the pattern is produced by selecting and pulling the warps exclusively by hand (in contrast to *tihuazhiji* 提花织机).

Tihuazeng 提花综: system of bamboo rods or heddles used to pull selected warps in order to produce a weftfaced compound tabby.

Tihuazhiji 提花织机: loom equipped with a patterning system (in contrast to *tiaohua* 挑花, where supplementary wefts are inserted exclusively by hand).

Tongjing duansewei wahua zhiwu 通经断色纬挖花织物: discontinuous coloured supplementary weft tabby compound (e.g. Tujia).

Tongjing duanwei 通经断纬: discontinuous supplementary weft patterning.

Tu'an xunhuan 图案循环: pattern unit or repeat.

Wahua 挖花: to brocade; term specifically used for discontinuous supplementary weft (brocading weft).

Wei 纬 or *weisha* 纬纱: weft, pick.

Weichongping 纬重平: weft-faced rep.

Wei'erchong 纬二重: a textile with two types (or groups) of wefts forming the pattern and one type of warp; sometimes used in Chinese textile literature (eg Huang Nengfu [2002], discussing Western Zhou imprints/pseudomorphs on a bronze handle) to describe weft faced compound brocade, with a supplementary weft forming the pattern.

Weifuxian 纬浮线: 'floating' weft.

Weijin 纬锦: weft faced compound tabby.

Weimi 纬密: weft yarn count.

Wenbang 纹棒: patterning rod.

Wengan 纹杆: patterning rod.

Wenwei 纹纬: patterning weft.

Xianweixian 纤维线: weavers in Southwest China use this expression to mean 'commercial synthetic yarns'.

Xiangfan suokou 相反梭口: counter shed.

Xianjinghua 显经花: warp pattern.

Xianwei 纤维: fibre.

Xiezhiji 斜织机: oblique loom.

Xuanzhou yaoji 悬轴腰机: externally-braced back-tensioned loom.

Xunhuan 循环: cycle/repeat; used to describe a decorative sequence, a repeated pattern usually produced by a series of heddles or patterning rods in a compound heddle.

Ya'er 鴉兒: literally 'crow'; rocker-heddle.

Yanghong 洋红: literally 'red from the West'; synthetic red dyestuff imported from the West.

Yangmei 杨梅: *Myrica rubra*, Chinese red bayberry, used as a red dyestuff.

Yaobi 摇臂: lever/arm connecting a patterning drum (or Venetian Blind patterning system) to a treadle (Maonan, Zhuang, Dong).

Yaoji 腰机: Back-tension loom. This includes both simple frameless looms, and back-tensioned types with a frame and integral seat.

Yehuagong 曳花工: draw-person (tower drawloom).

Yingge 鹦哥: 'parakeet'; rocker-heddle; Miao weavers in Zhaoxing call this device a *danuo* (bird's eye in Miao), Liping Dong call it *ba* (bird's wing in Dong). It can also be shaped as a fish (Zhuang loom in Napo, Tujia loom).

Yuanma 园麻: local term ('garden hemp') used in Southeast Guizhou (Qiandongnan) to designate ramie.

Yuzi 纣子: spool, wind bobbin, on which the weft yarn is wound for insertion into the shed.

Zanghonghua 藏红花: see *honghua* 红花.

Zeng 综: heddle.

Zengpian 综片: a heddle with a frame.

Zengsheng 综绳: heddle string/loop (for selection/picking of warp in weft patterning systems such as Maonan, Zhuang, Dong, etc.).

Zengyan 综眼: heddle eye.

Zhacan 榨蚕: a variety of silk produced in North China.

Zhecan 柘蚕: a variety of silk produced in Hunan in the past, feeding directly on the *Cudrania tricuspidata* tree.

Zhangli 张力: tension (warp).

Zhibian 织边: selvedge.

Zhigong 织工: weaver.

Zhihua 织花: to weave brocade; term used by weavers in Southwest China.

Zhizhou 织轴: cloth beam.

Zhou 縴, 绉: fine ko-hemp or kudzu fabric; poplin.

Zhu 杼: shuttle (archaic).

Zhu 紵, 苧 or *zhuma* 苧麻: ramie; cloth made of ramie.

Zhugun 竹棍: bamboo sticks/rods forming the *huaben* supported by the *zhulong* (Zhuang, Binyang).

Zhukou 竹箊: see *kou*.

Zhulian 竹帘: literally ‘bamboo curtain’; a type of bamboo rods patterning system used by the Daic people (Dai, Dong). Sometimes translated in the West as ‘Venetian Blind’, in the case of the Dai loom of Yunnan.

Zhulong 竹笼 or *zhuhualong* 竹花笼: literally ‘bamboo cage’; Zhuang type of patterning system made of bamboo sticks used to pull selected warps in order to produce a weft-faced compound tabby. This term is sometimes also used for the ‘bamboo barrel’ type loom (Maonan).

Zhulong 猪笼: literally ‘pig’s cage’; a synonym of *zhulong* (竹笼).

Zhutong 竹筒: wide bamboo tube placed in a shed opening or used to maintain the warp tension.

Zhutong 竹桶: bamboo ‘barrel’ patterning system (Maonan).

Zhuzhen 竹针: bamboo patterning rods forming the *huaben*, placed on the *zhulong* or *zhutong*. Also called *bianhuazhu* 编花竹 or *zhugun* 竹棍.

Ziran suokou 自然梭口: natural shed.

Zudeng yaoji 足蹬腰机: foot-braced back-tensioned loom.

Zuocan 柞蚕: literally ‘oak silk worm’, tussah, *Antharaea pernyi*, also known as *yecan* 野蚕 (‘wild silk worm’), *chuncan* 春蚕 (‘spring silk worm’), or *shancan* 山蚕 (‘mountain silk worm’), feeding on oak leaves and producing tussah silk, is said to have been transplanted

from Shandong province to Guizhou (Zunyi area) in the 12th century.

Zuzhitu 组织图: weave structure diagram.

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